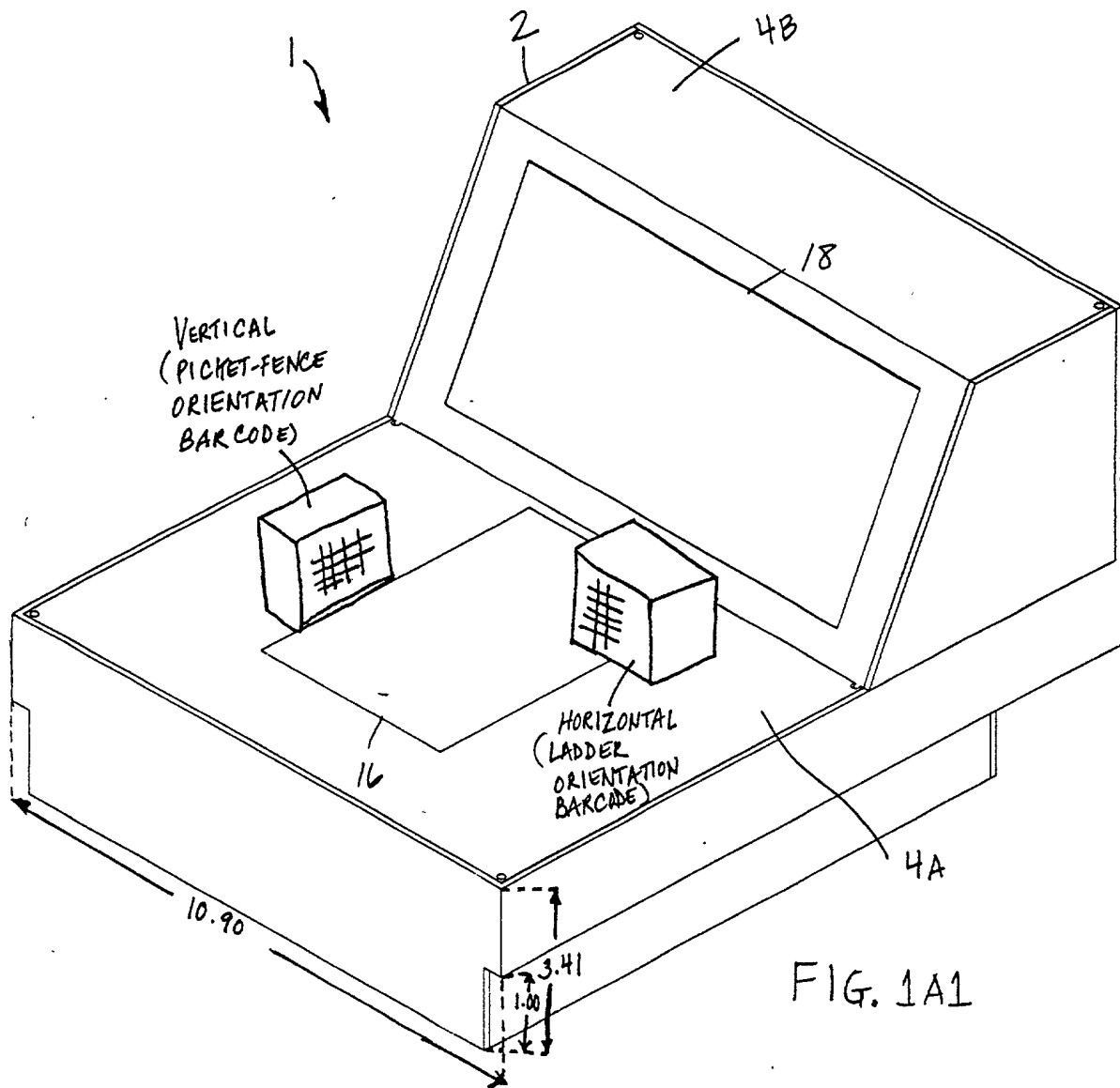


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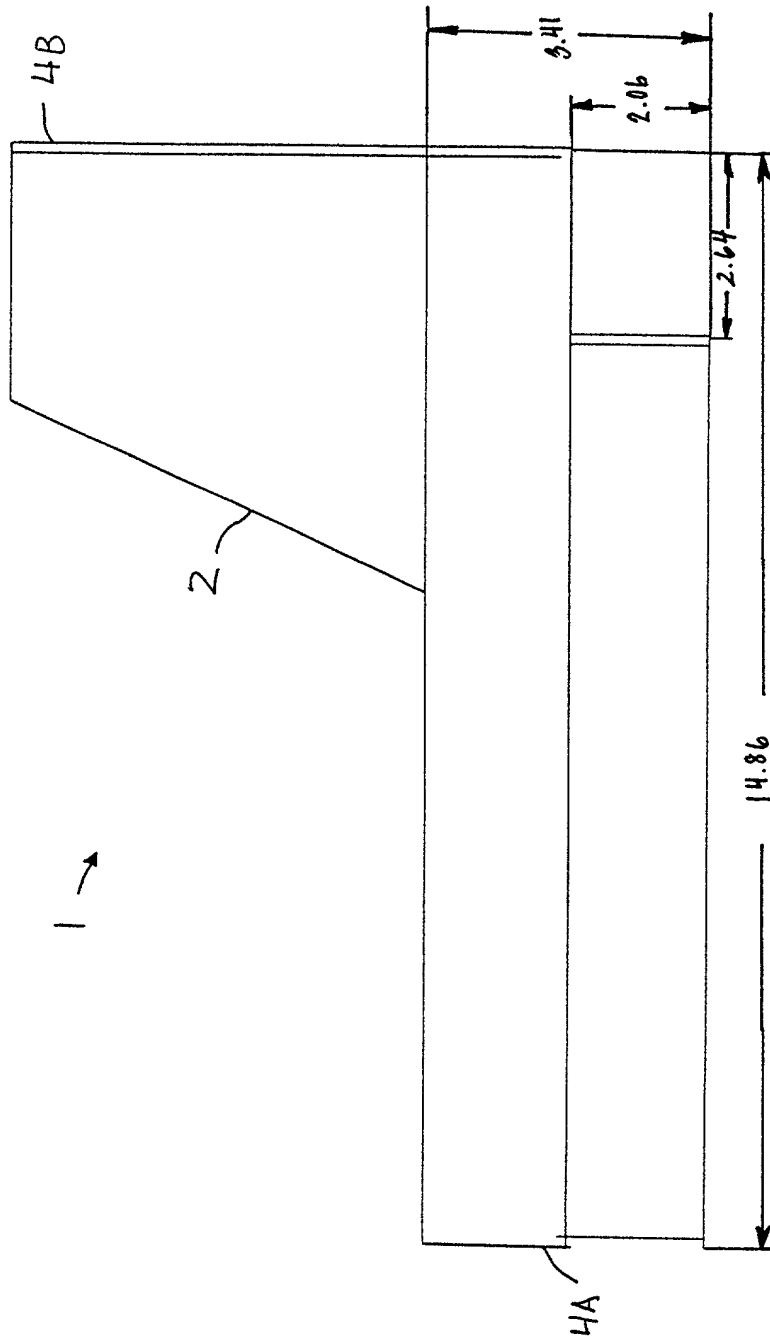


FIG. 1A2

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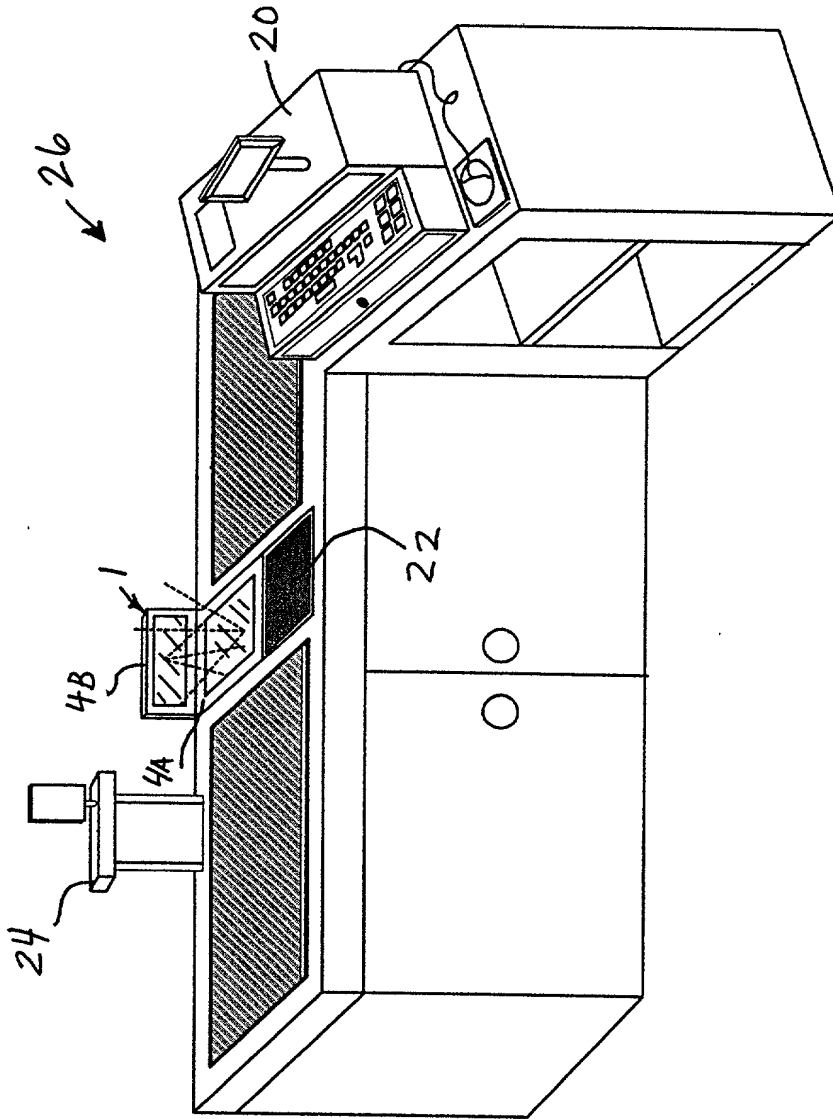


FIG. 1B

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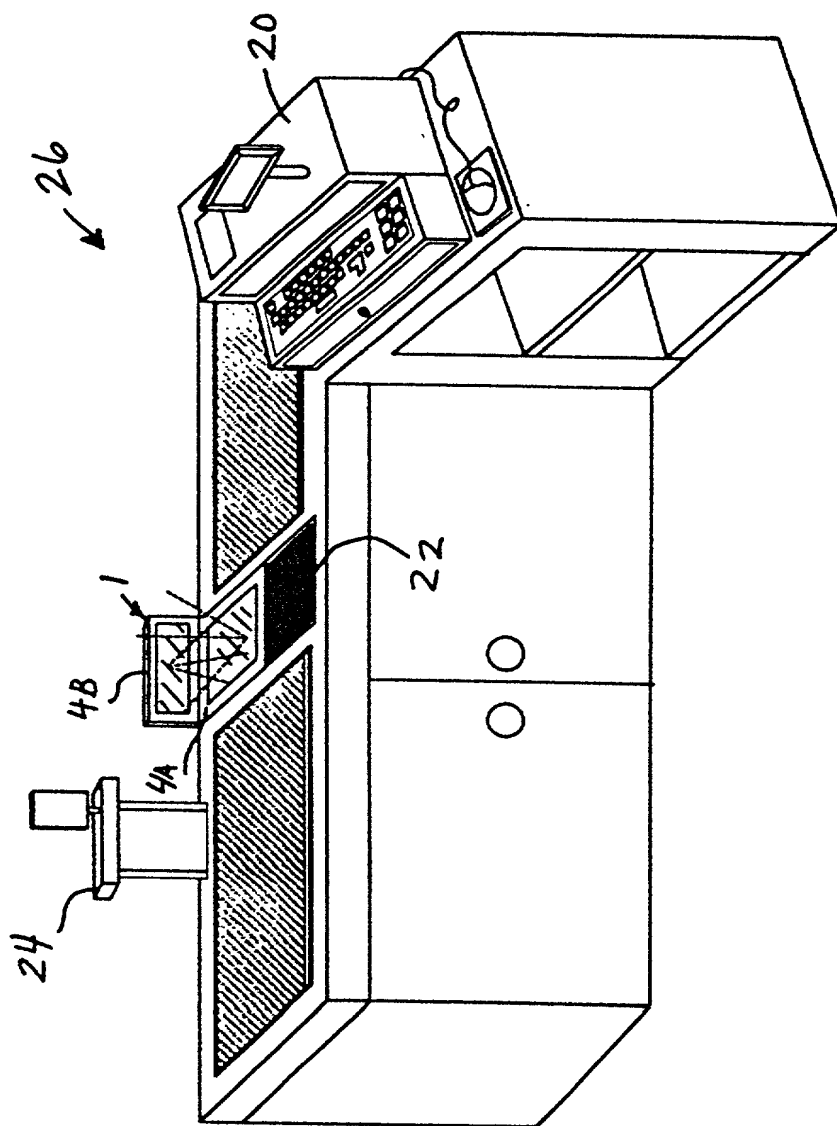


FIG. 1B1

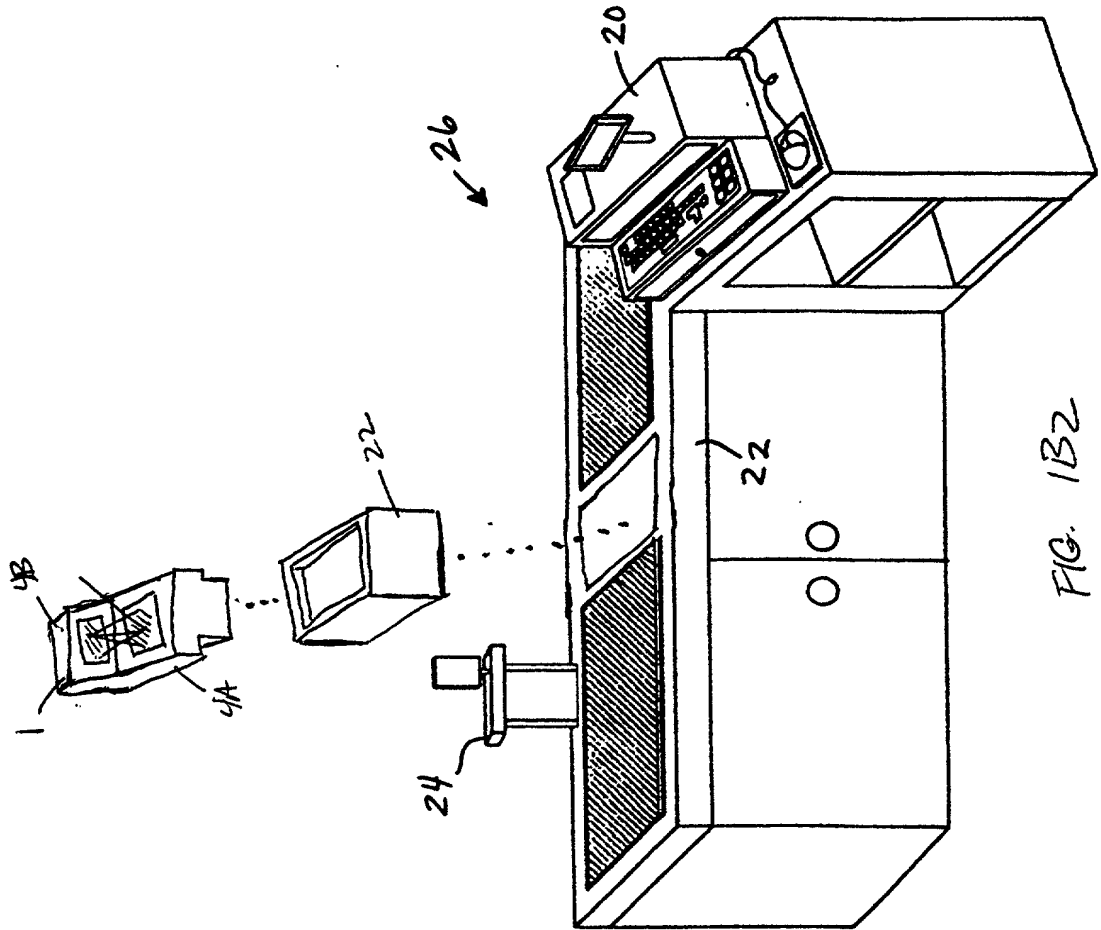


FIG. 1B2

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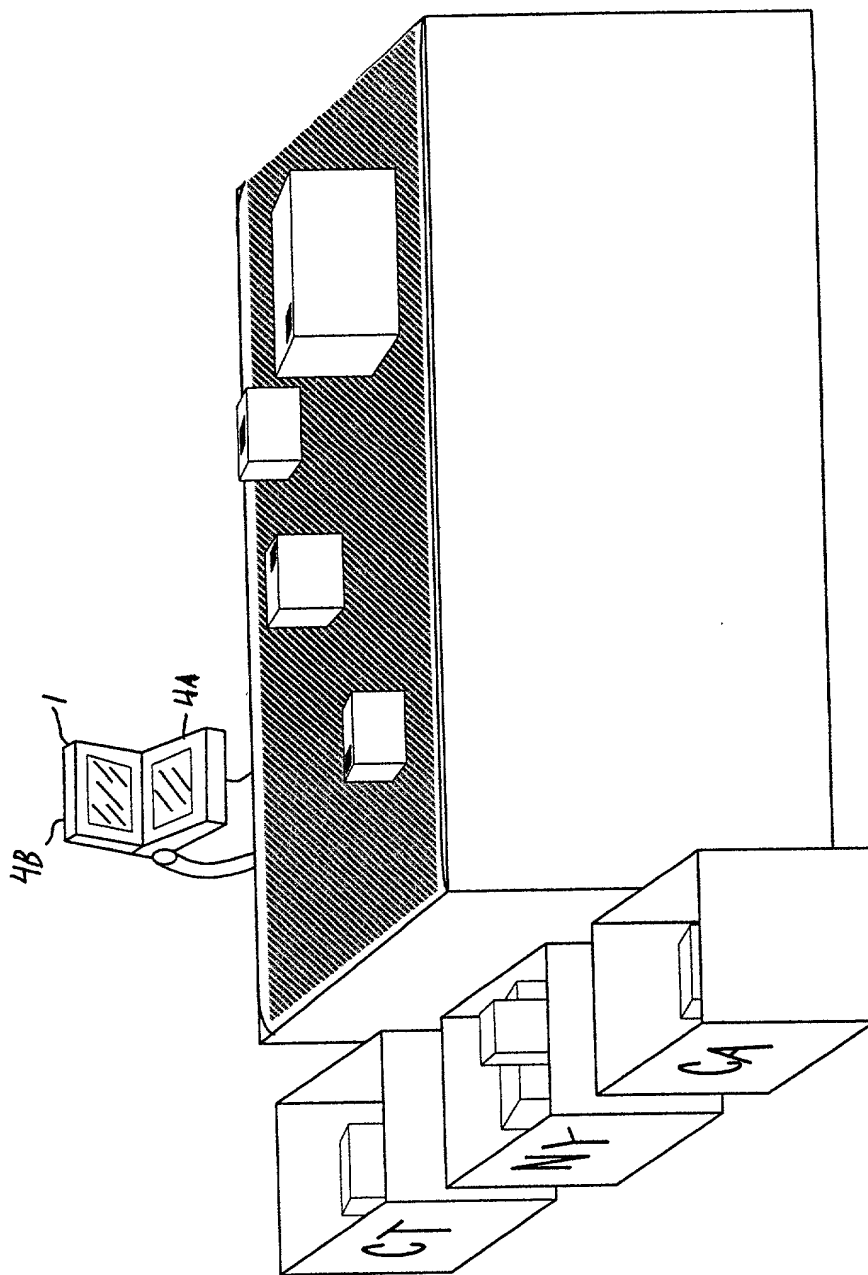


FIG. 1C

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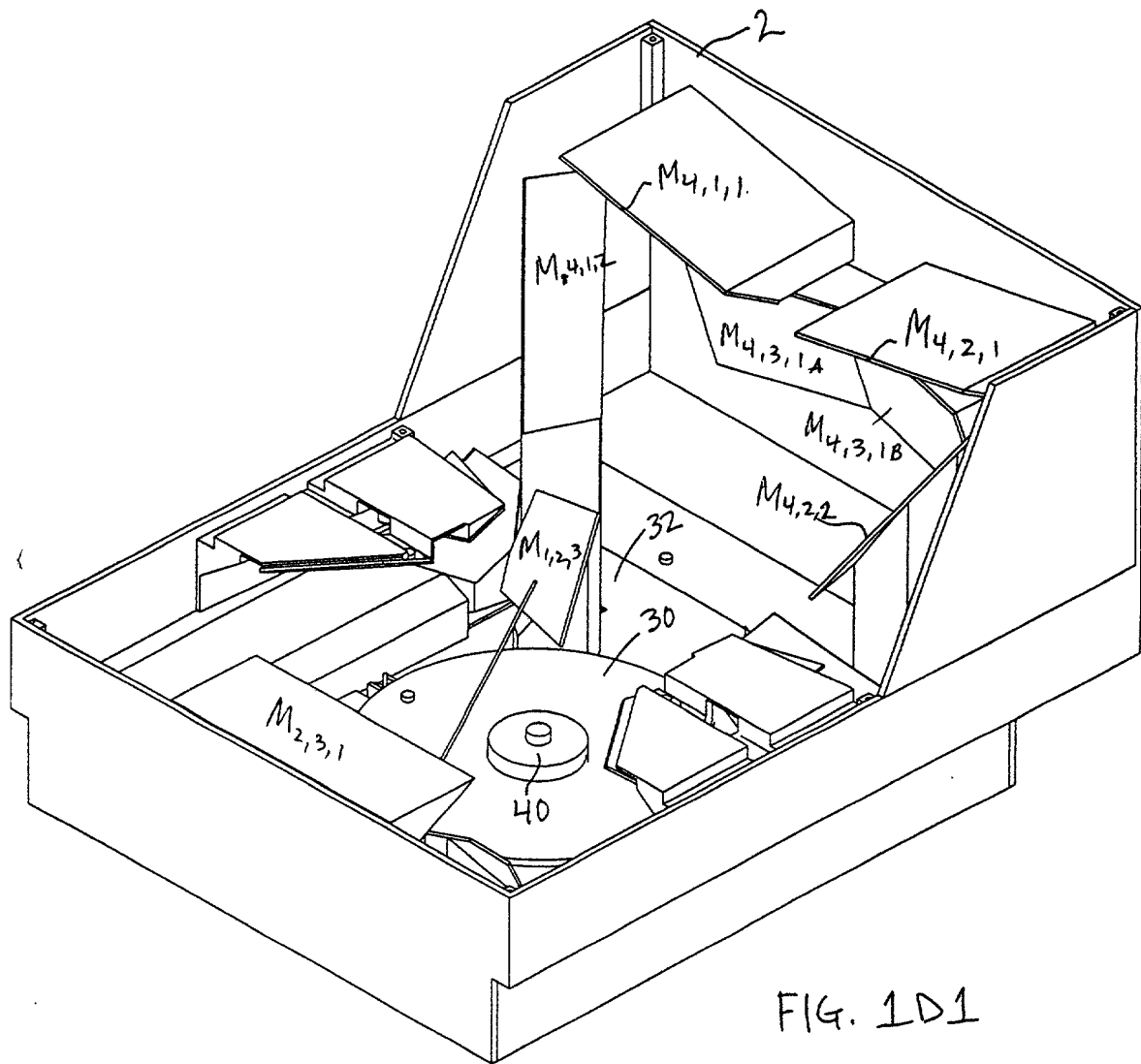


FIG. 1D1

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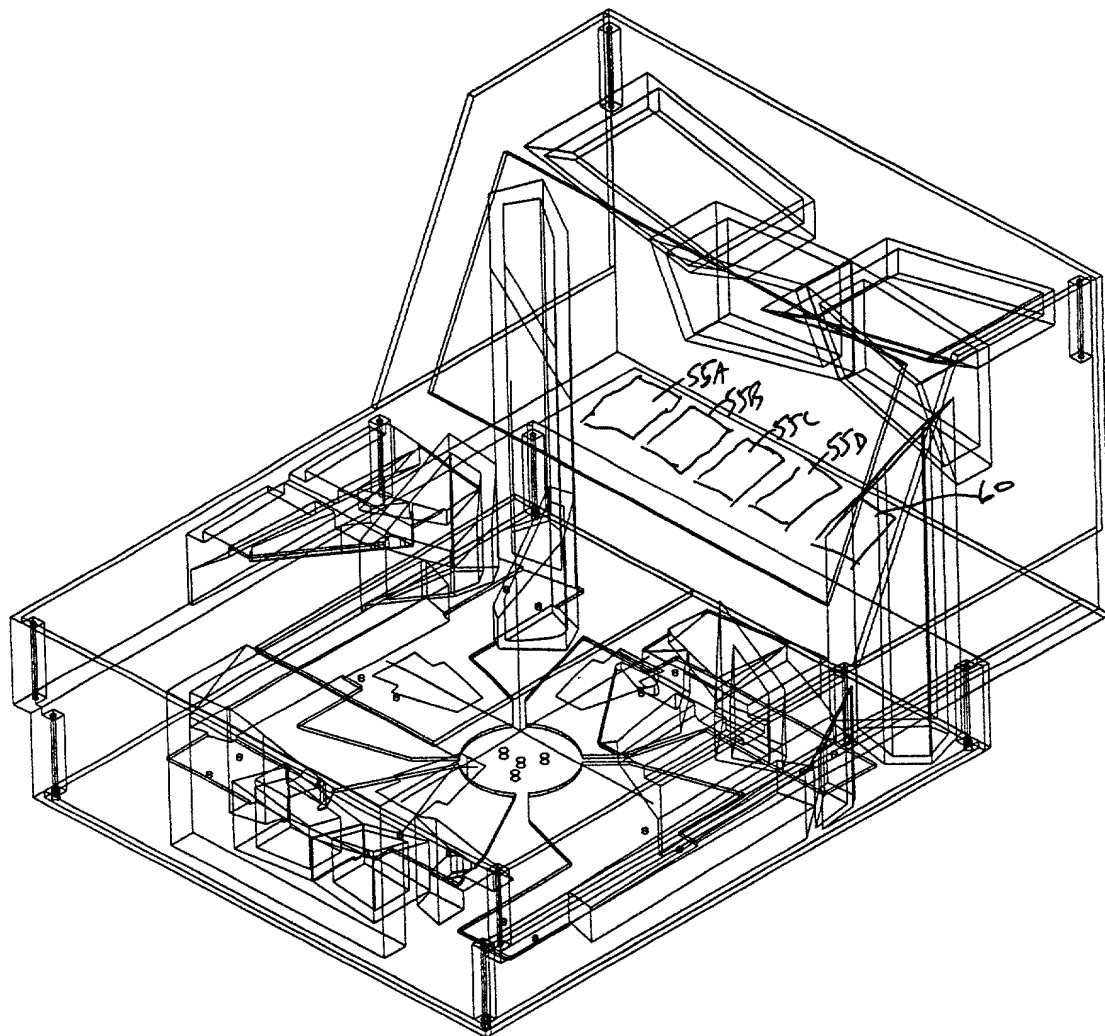


FIG. 1D2

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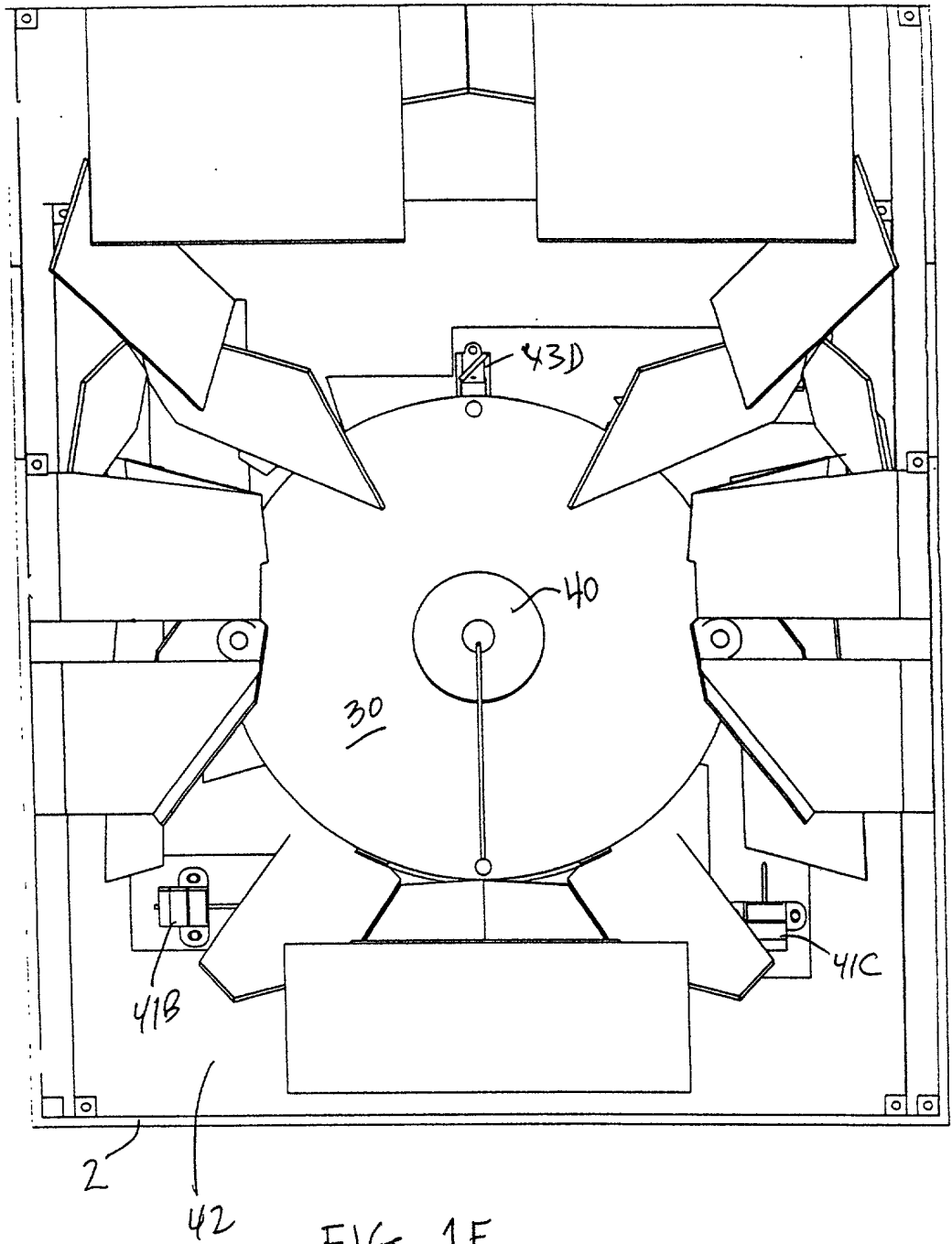


FIG. 1E

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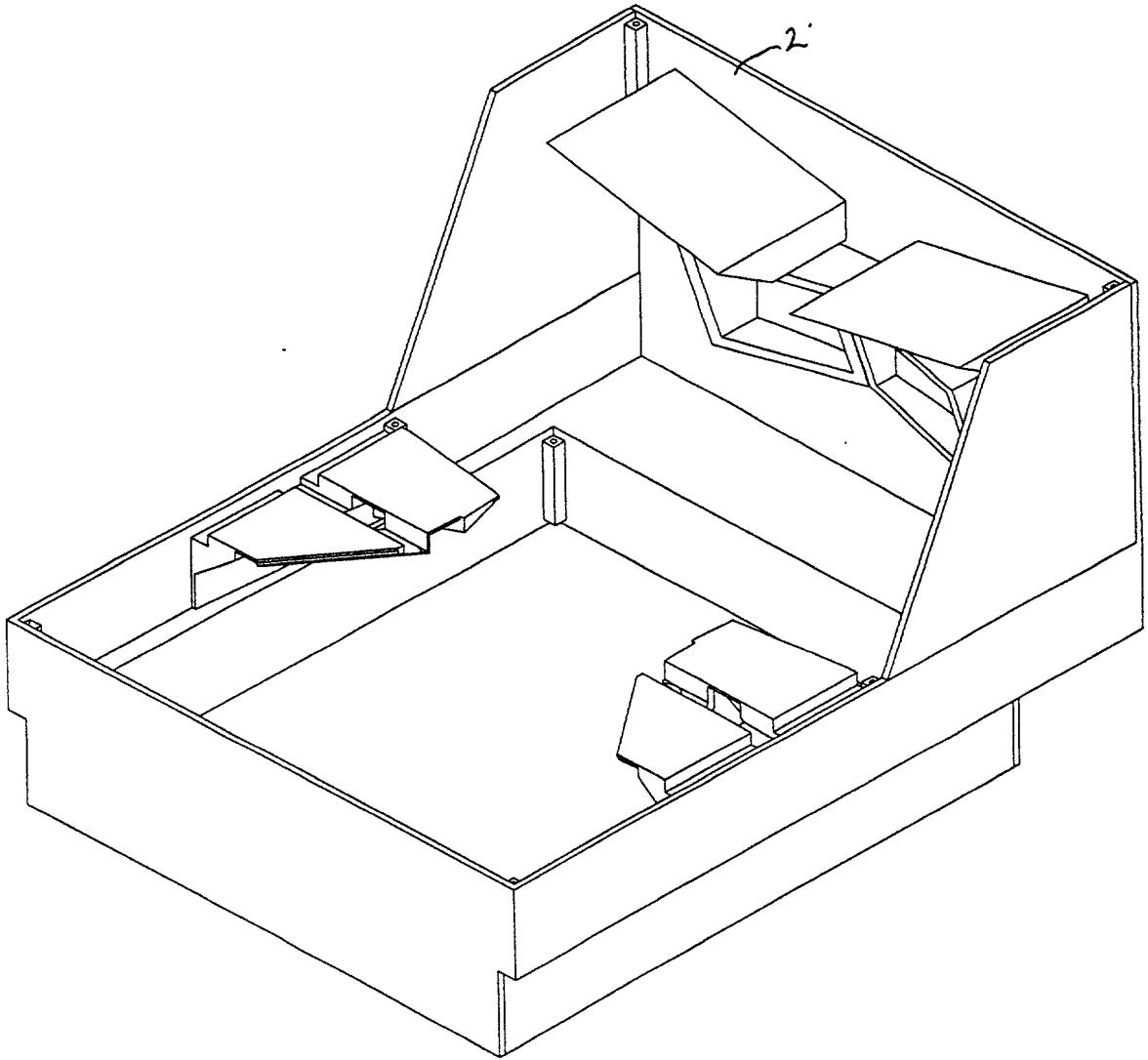


FIG. 1F

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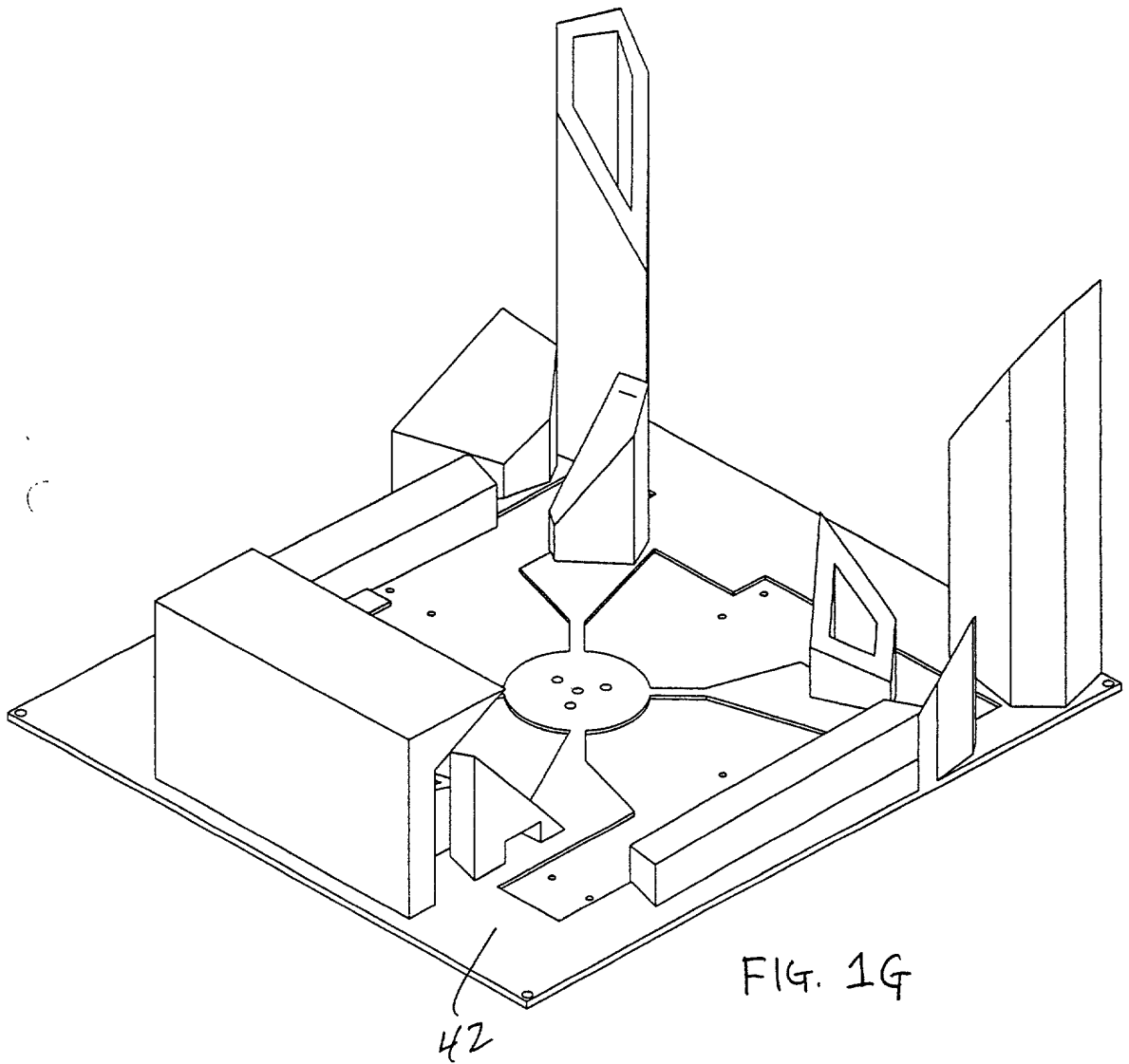


FIG. 1G

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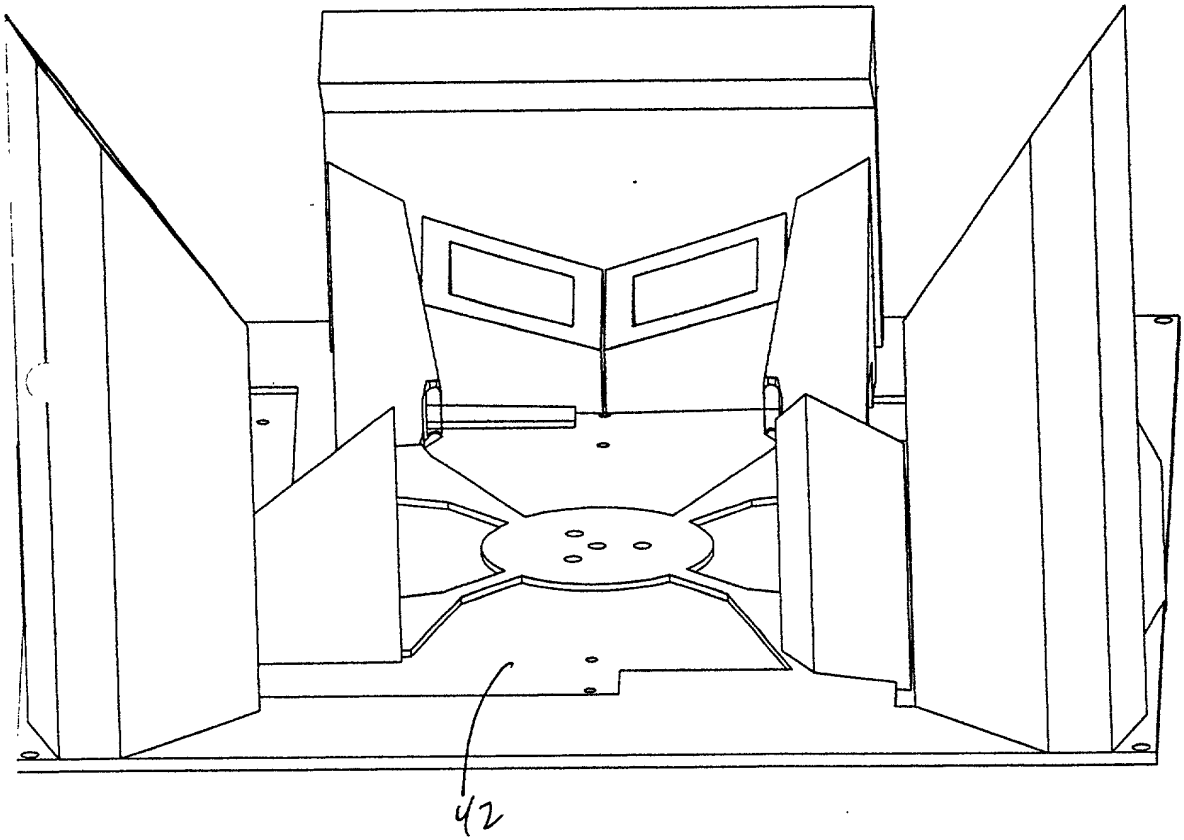


FIG. 1H

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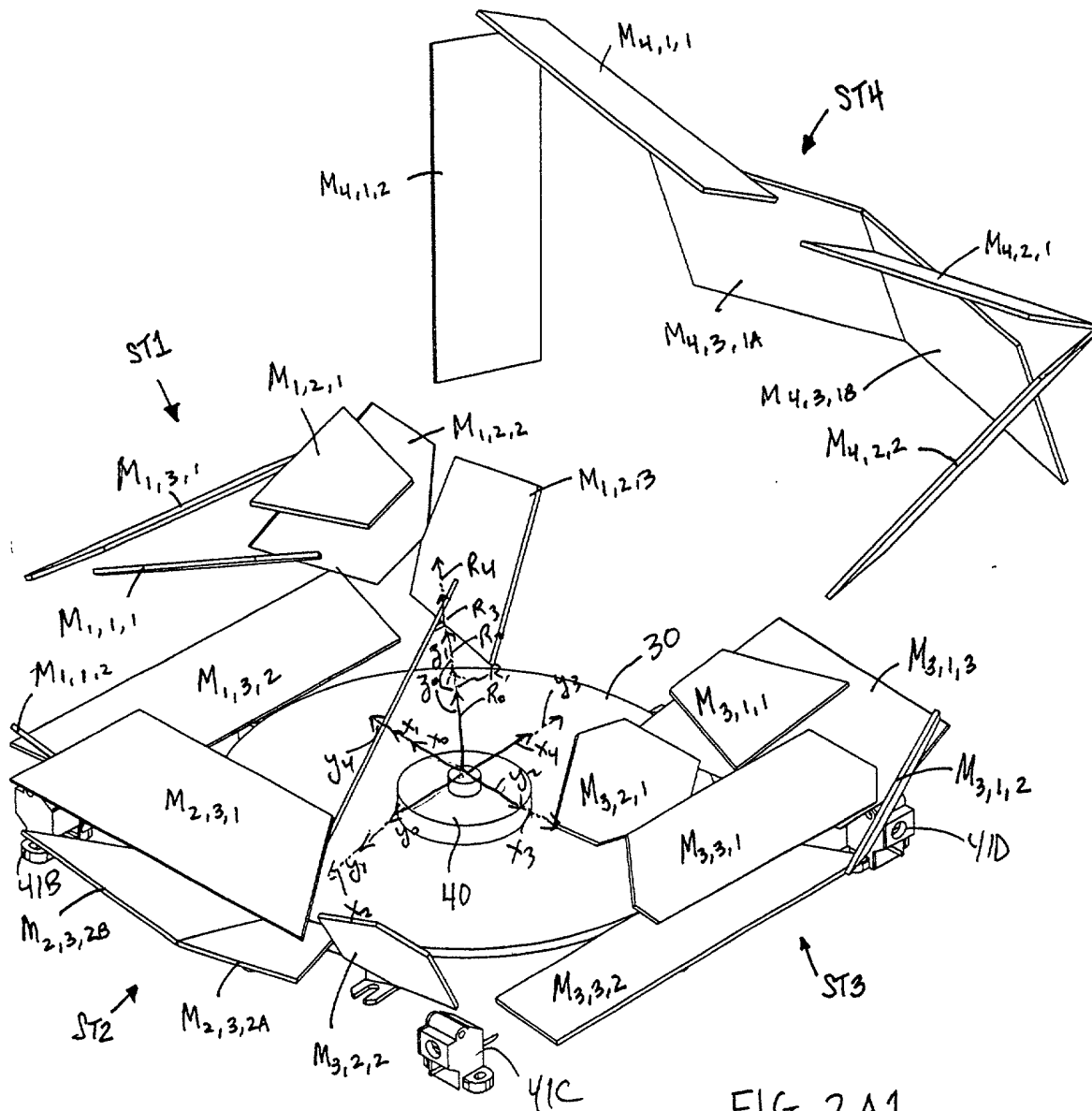


FIG. 2A1

Define: R_1, R_2, R_3, R_4, R_0

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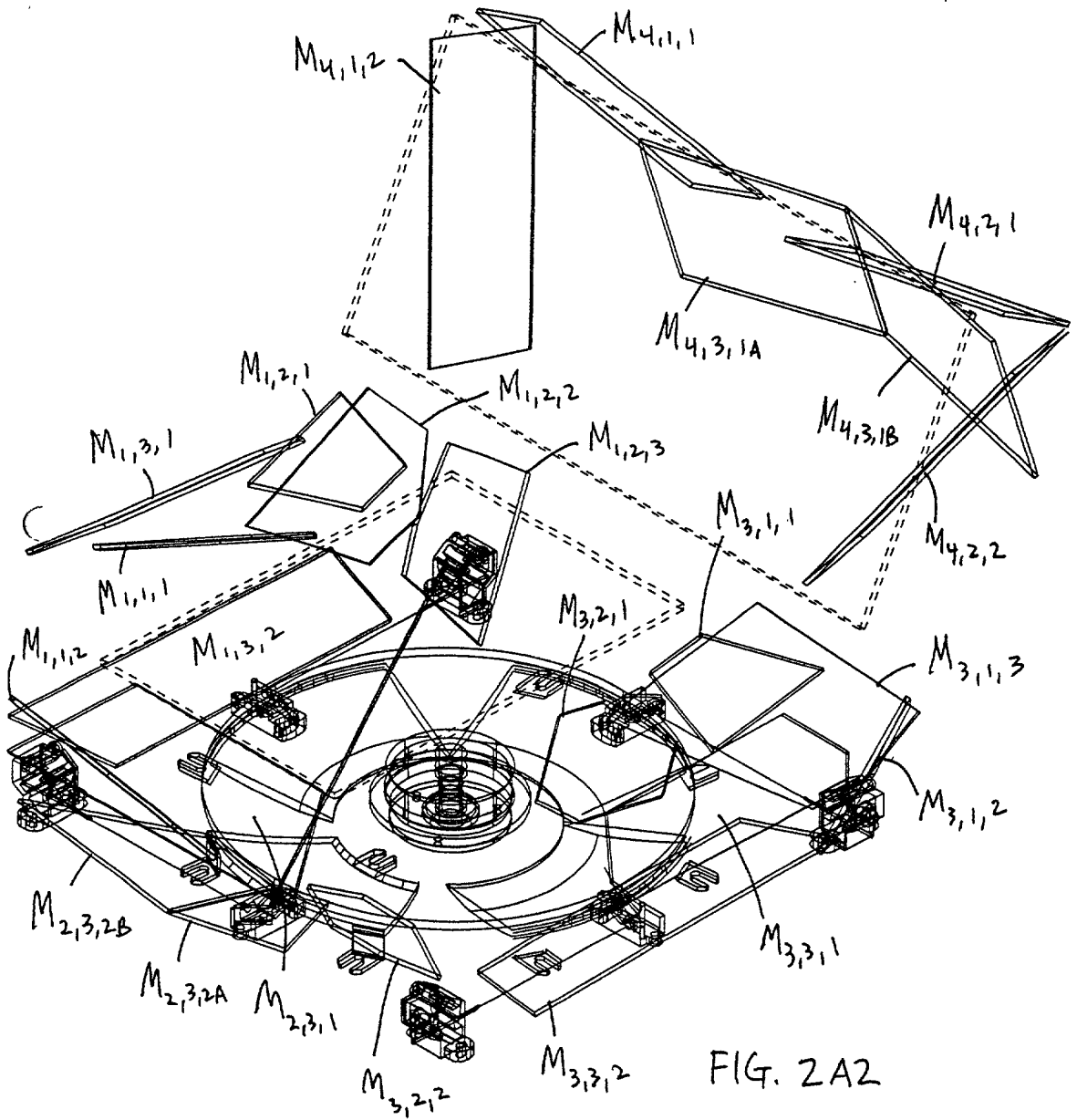
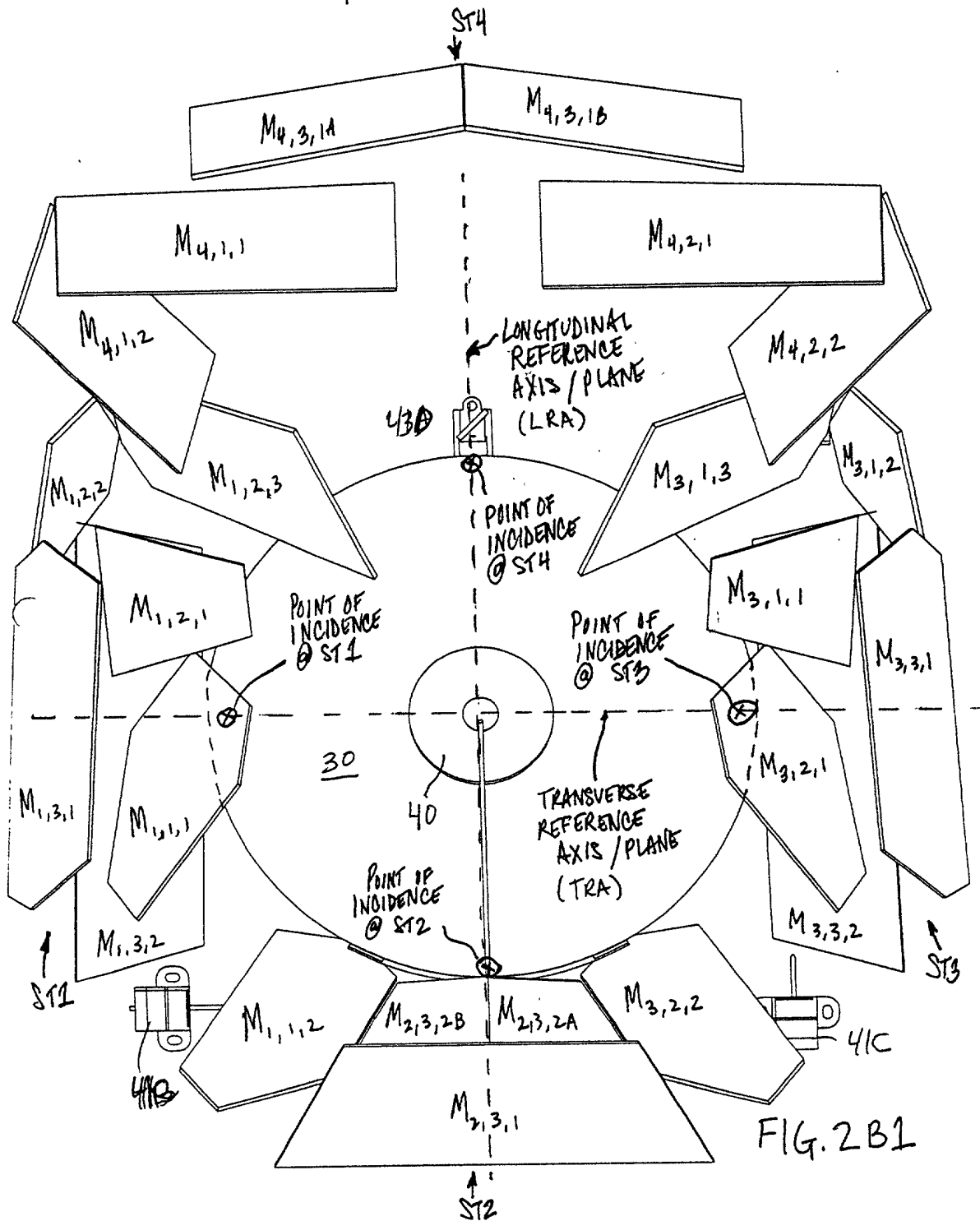
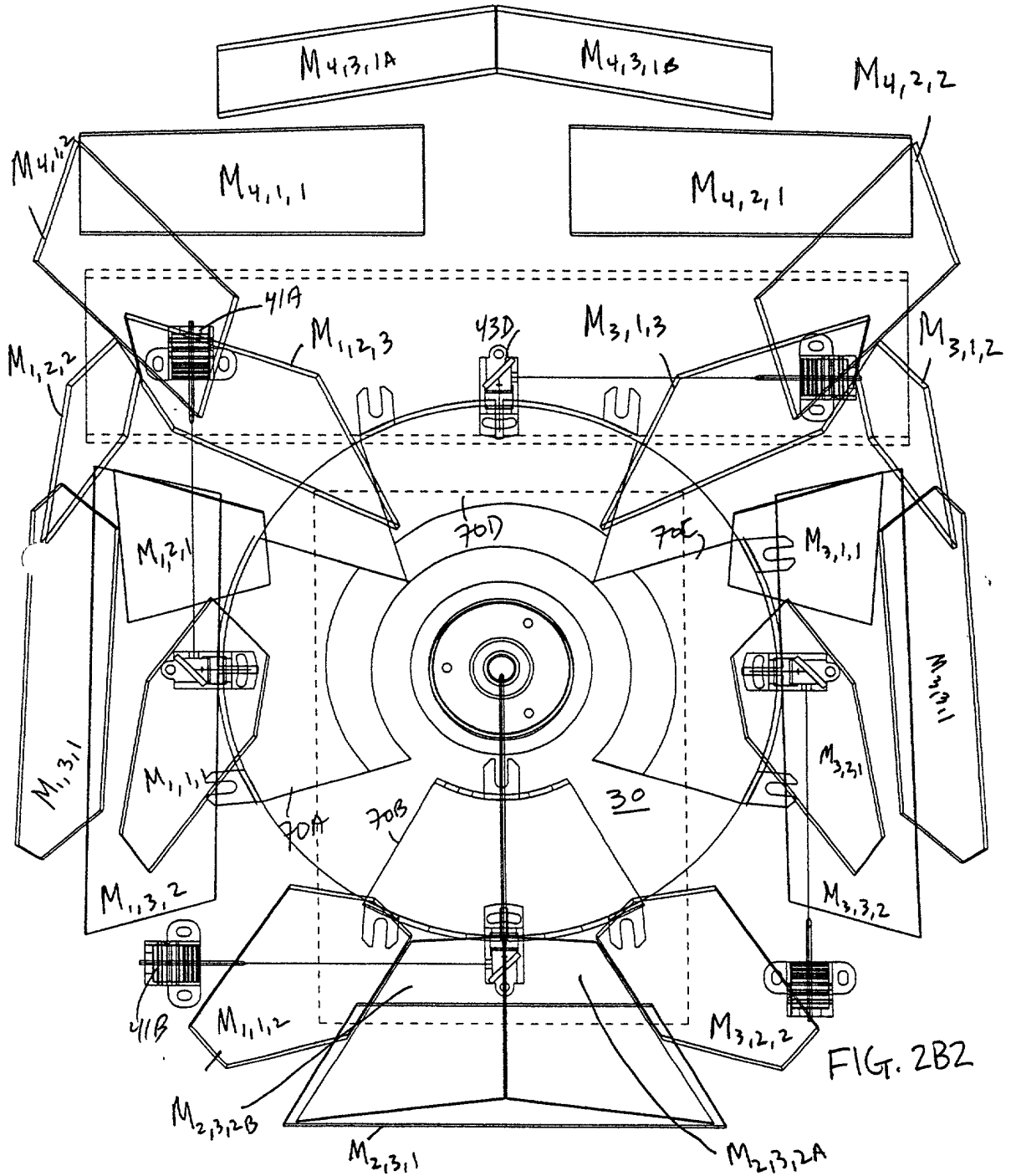


FIG. 2A2

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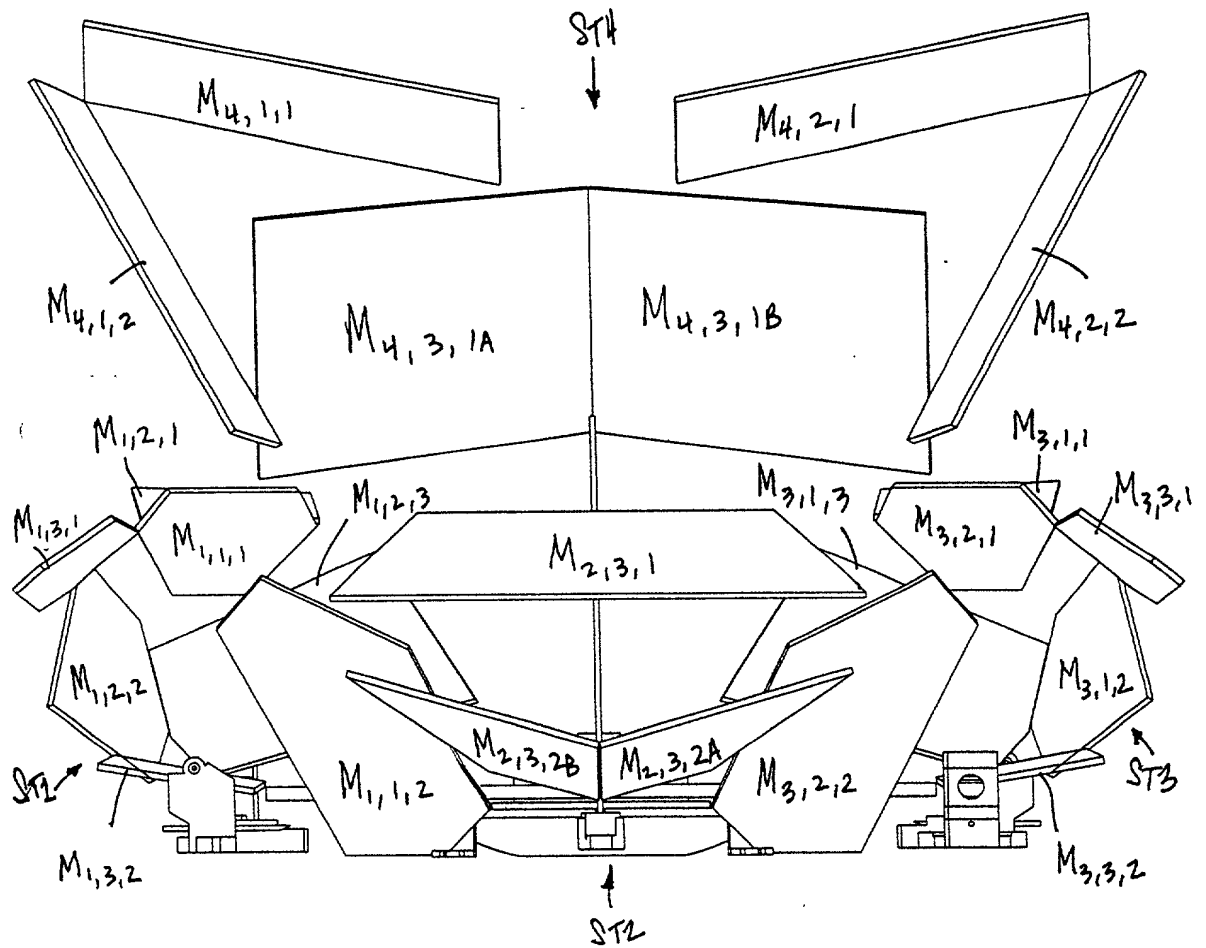


FIG. 2C1

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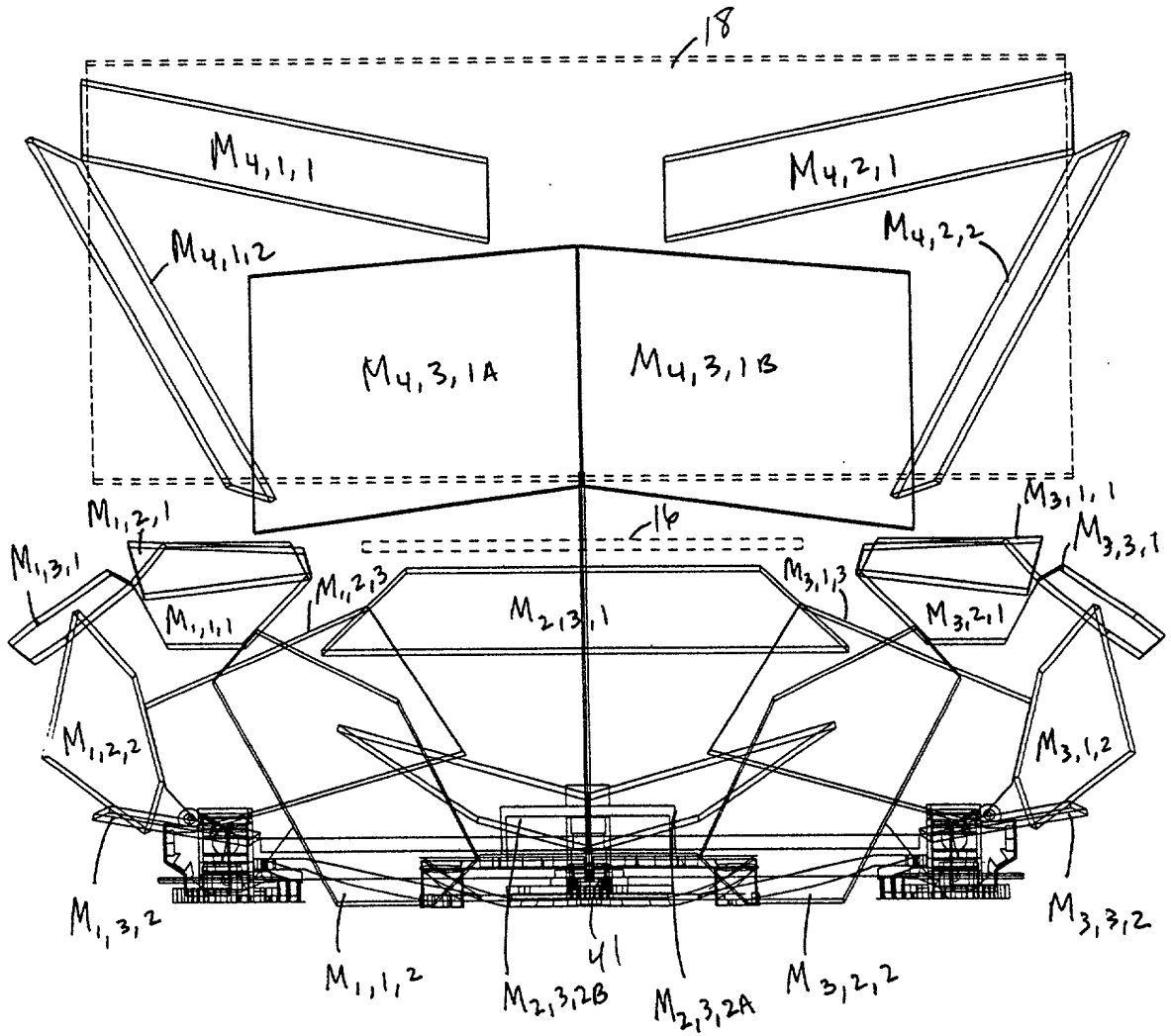


FIG. 2C2

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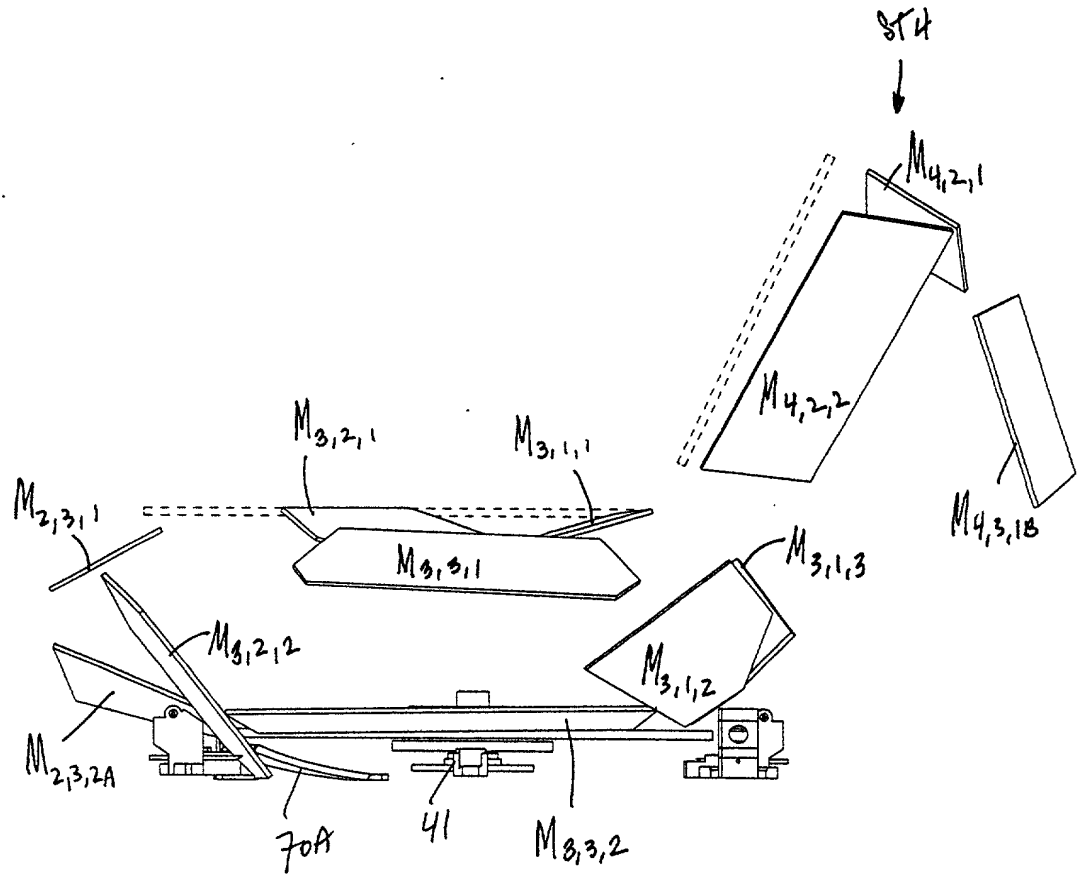


FIG. 2D1

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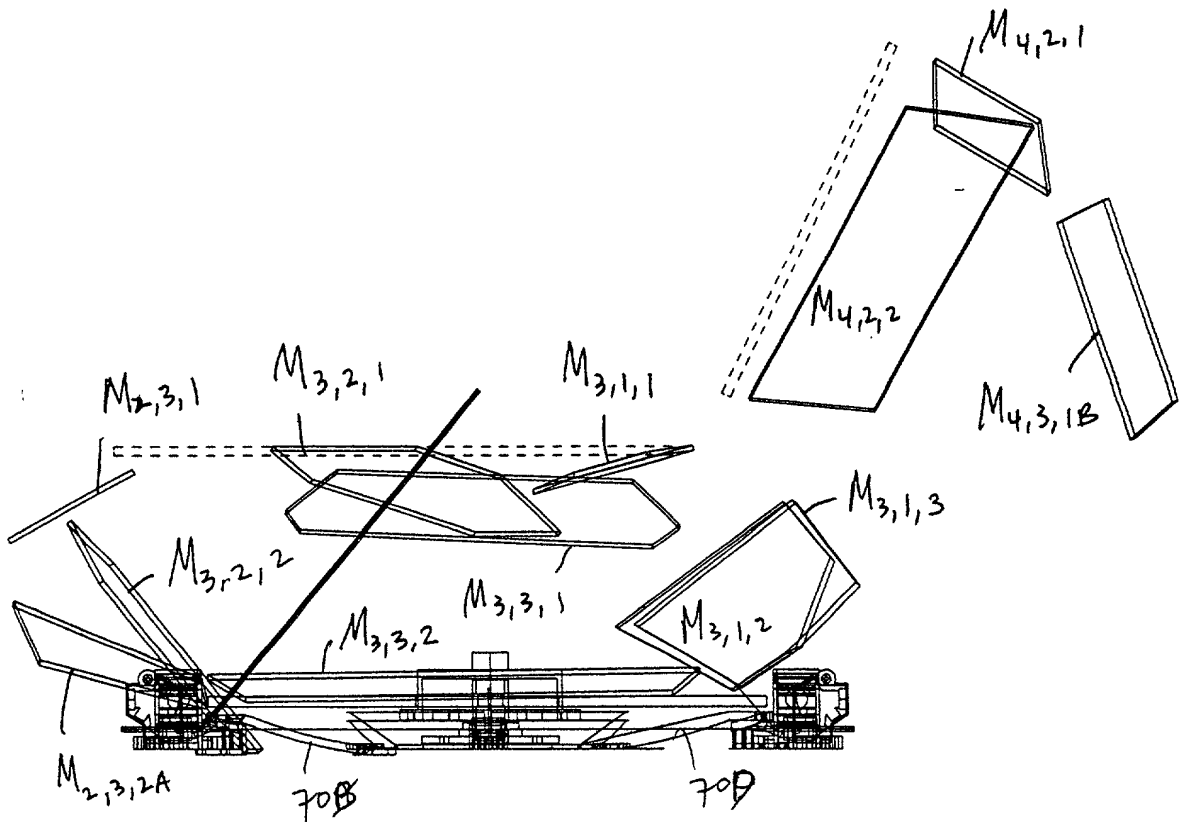


FIG. 202

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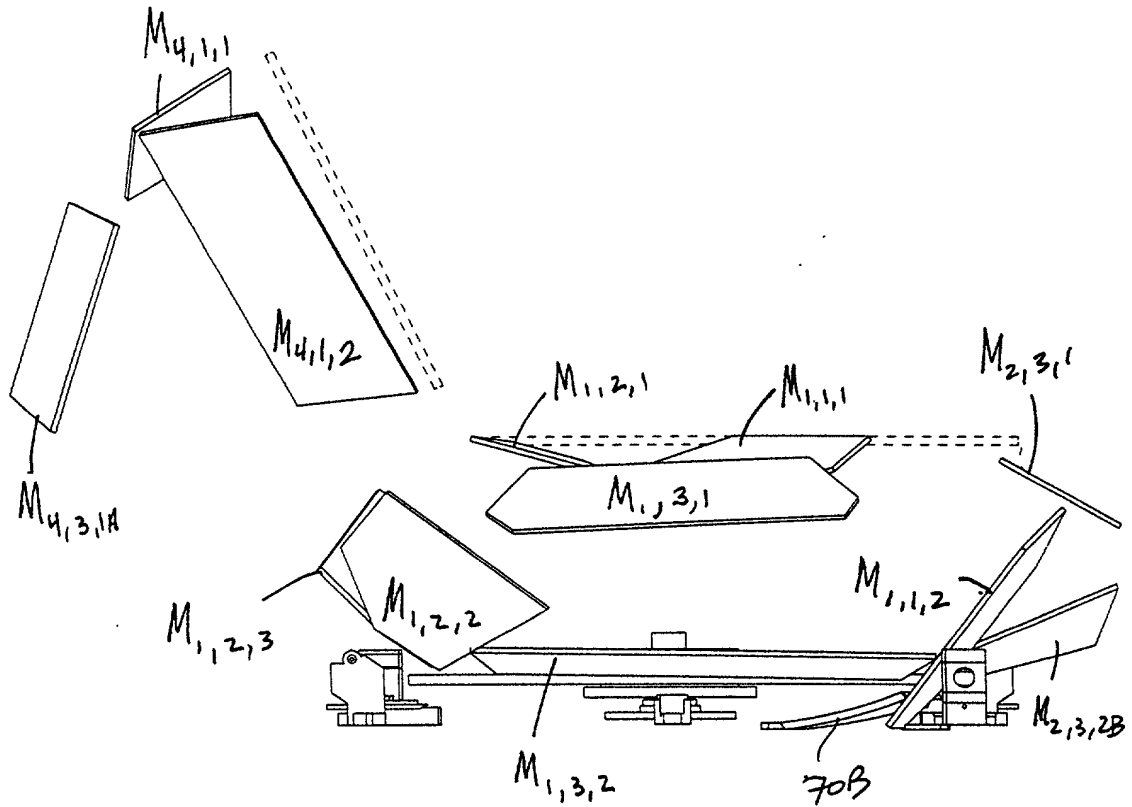


FIG. 2E1

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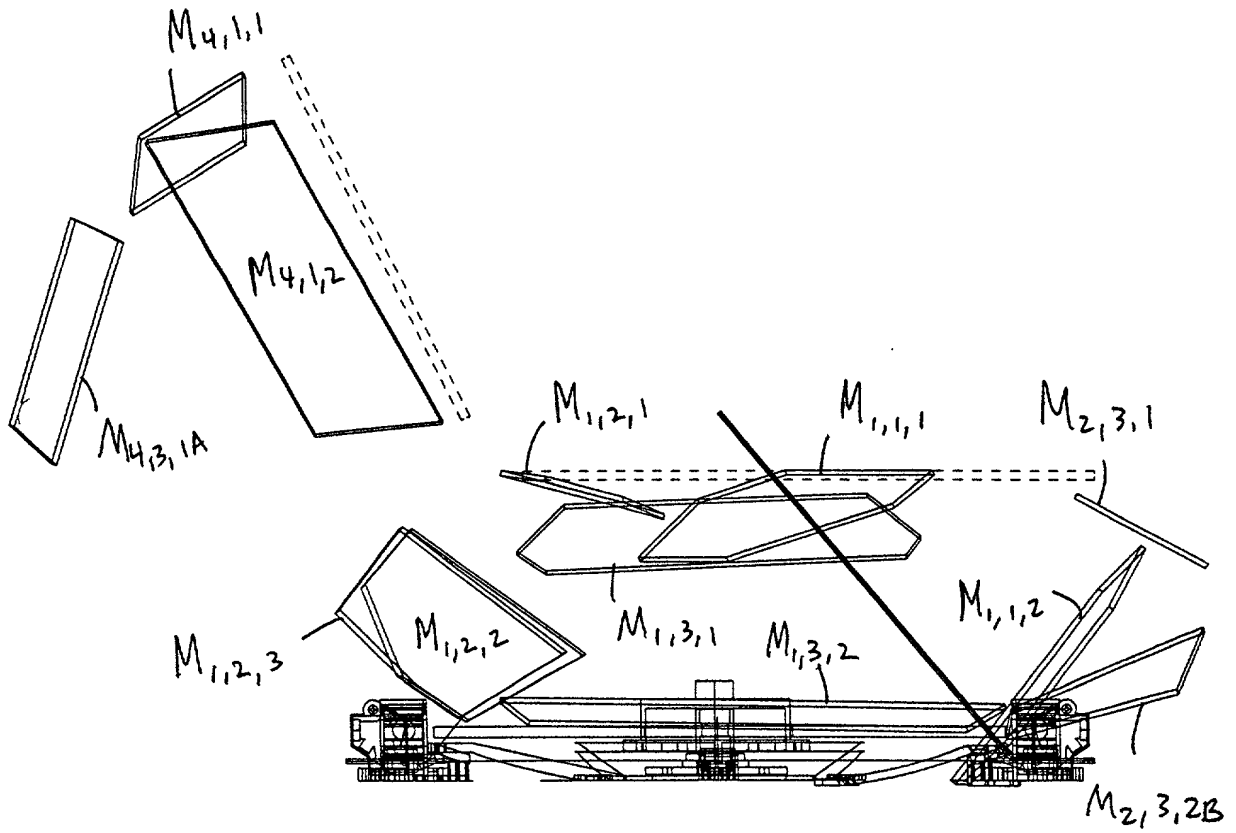


FIG. 2E2

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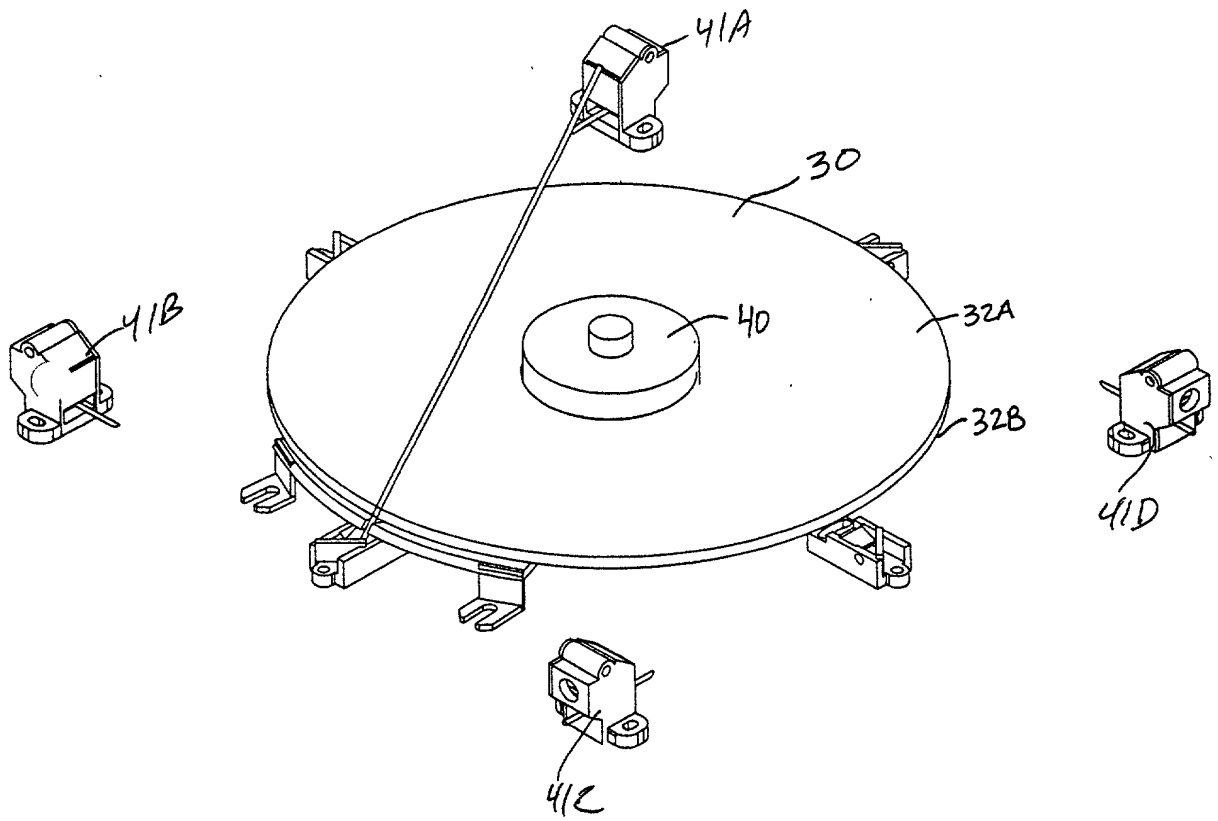


FIG. 2F1

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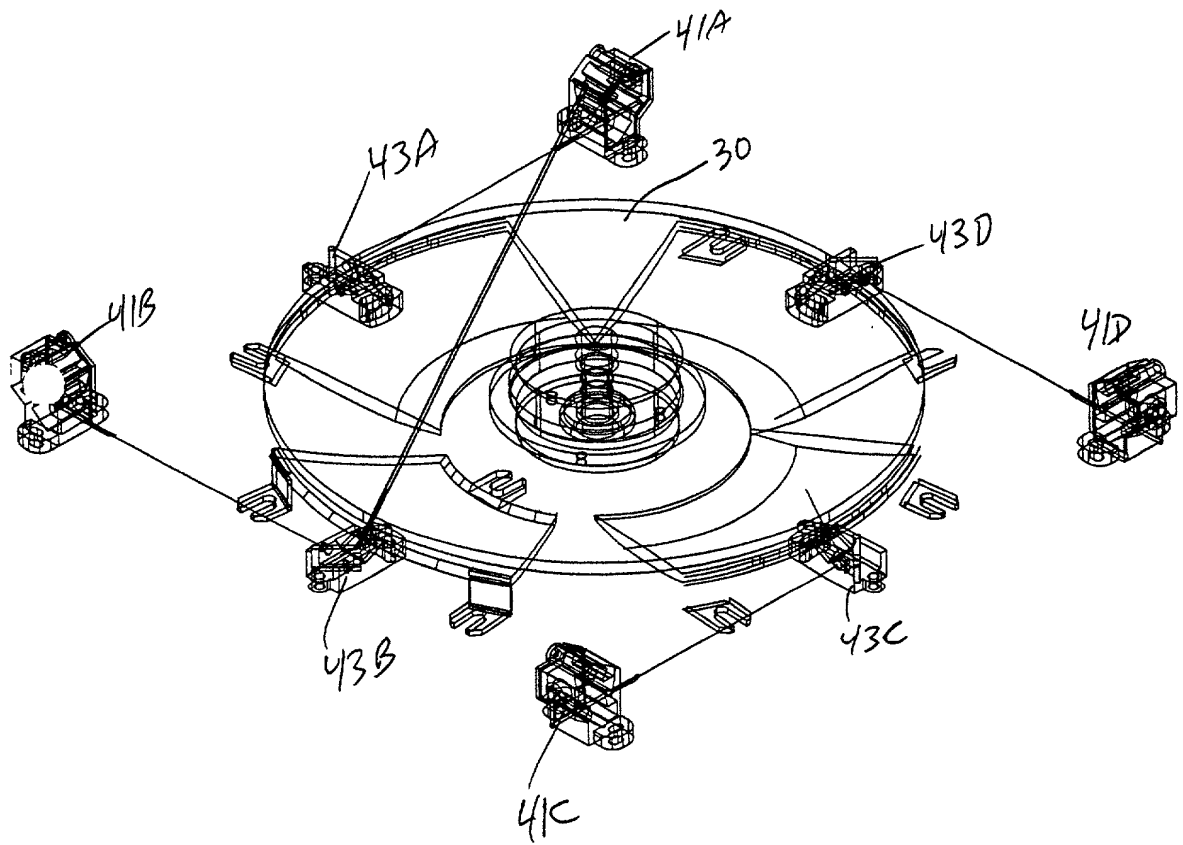


FIG. 2F2

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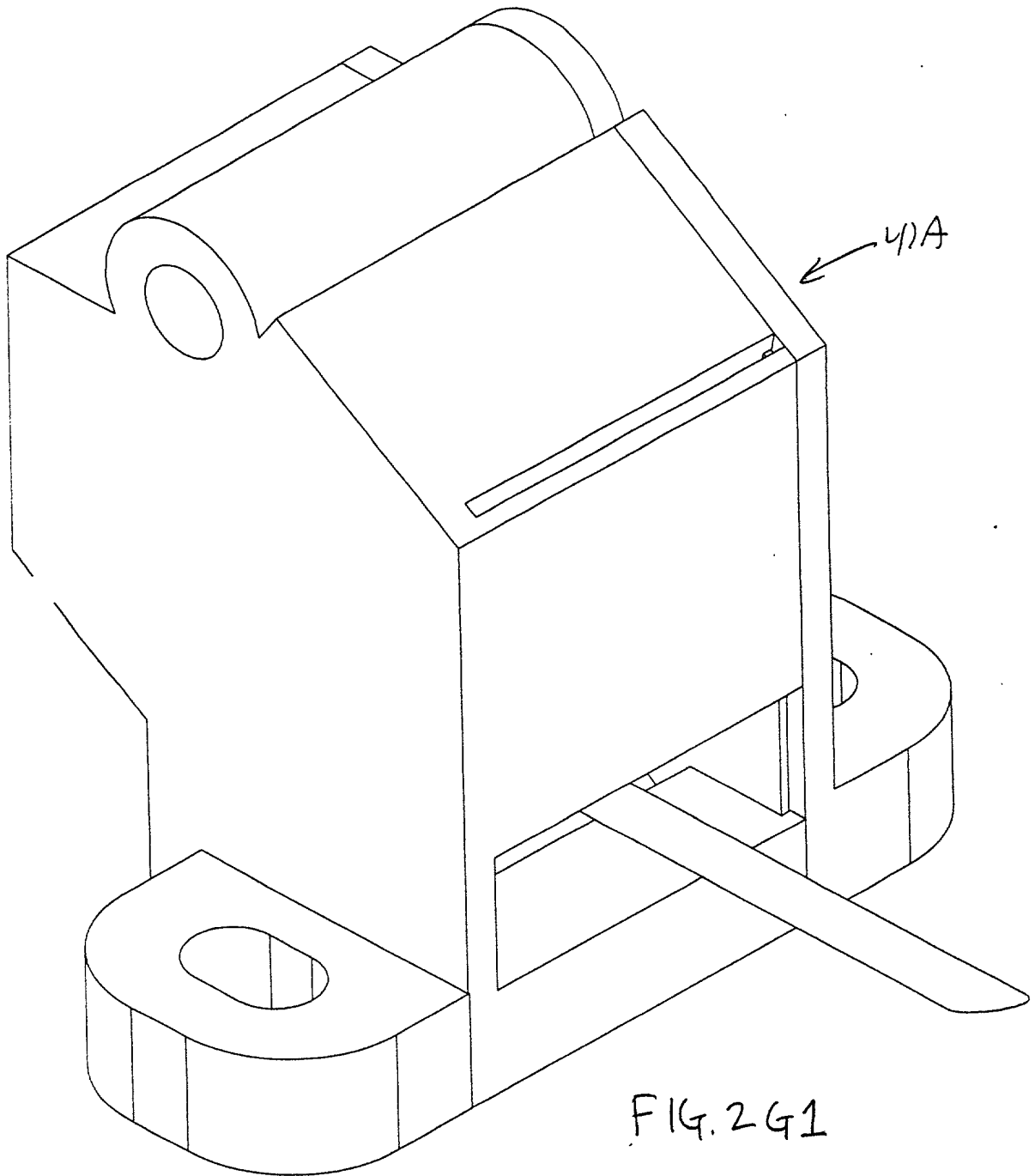


FIG. 261

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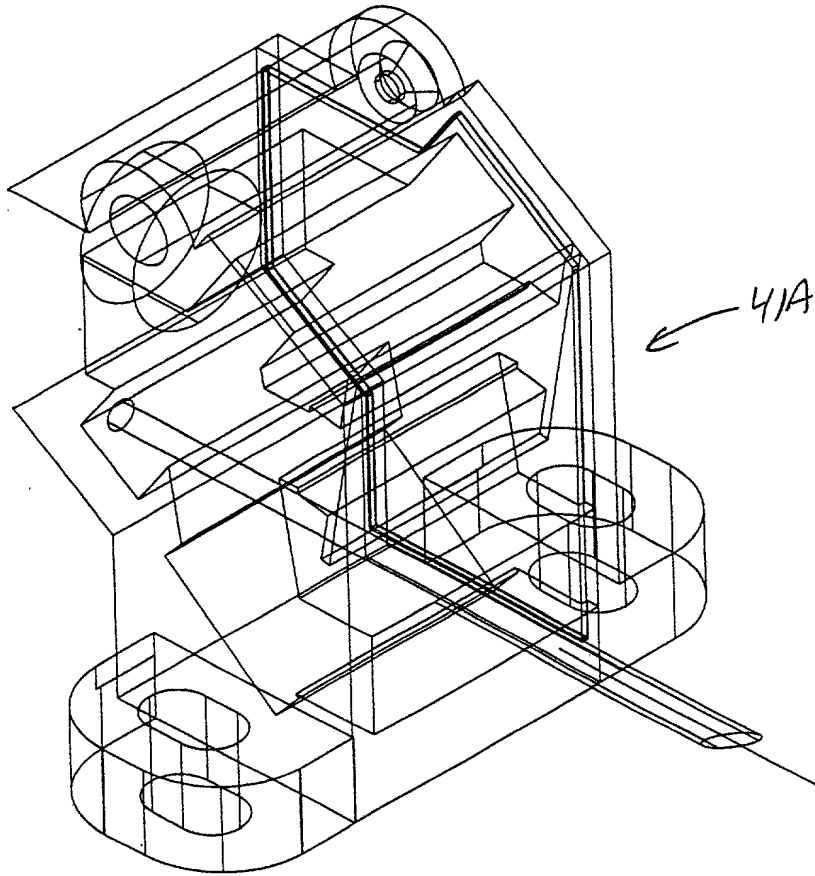


FIG. 2G2

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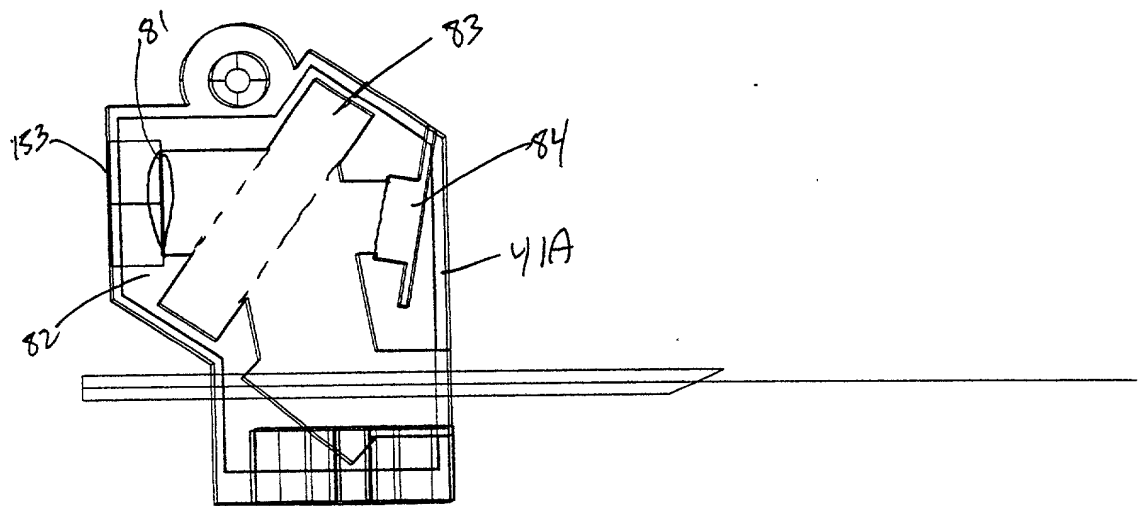


FIG. 2G3

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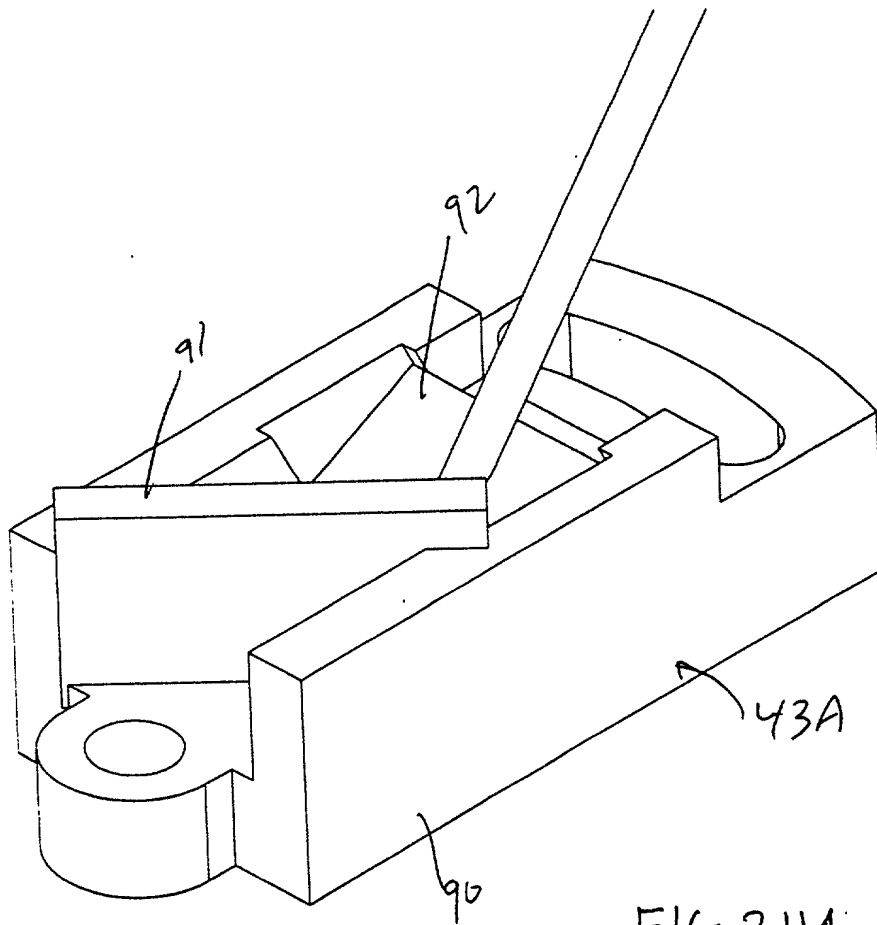


FIG. 2H1

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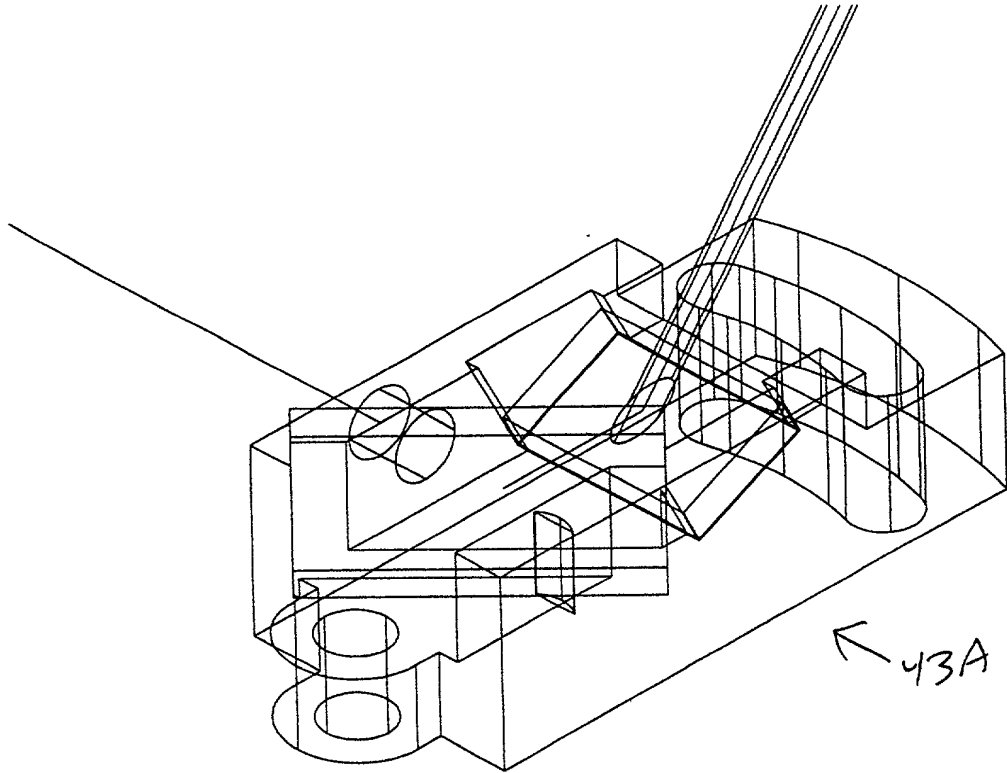


FIG. 2H2

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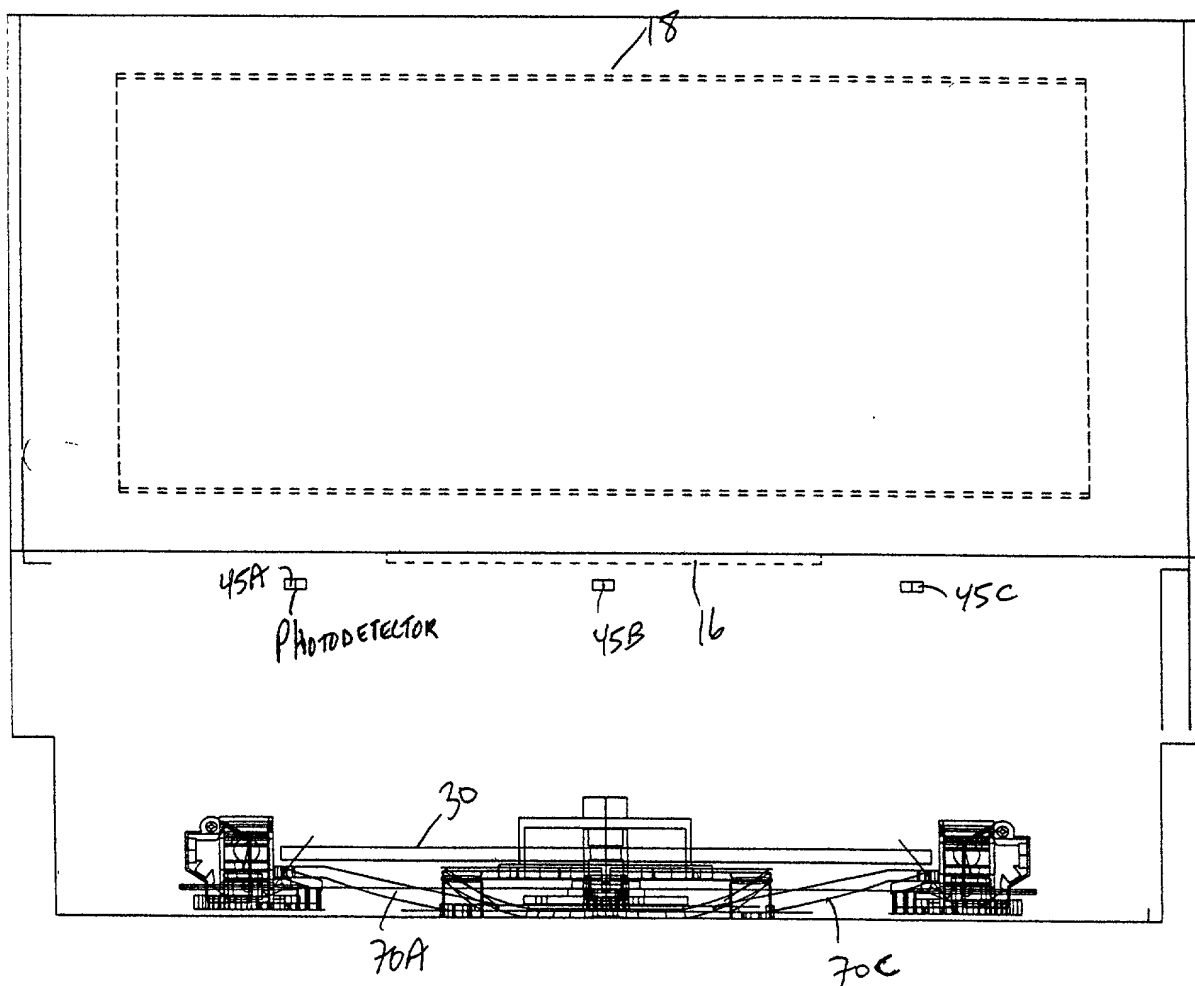


FIG. 2I1

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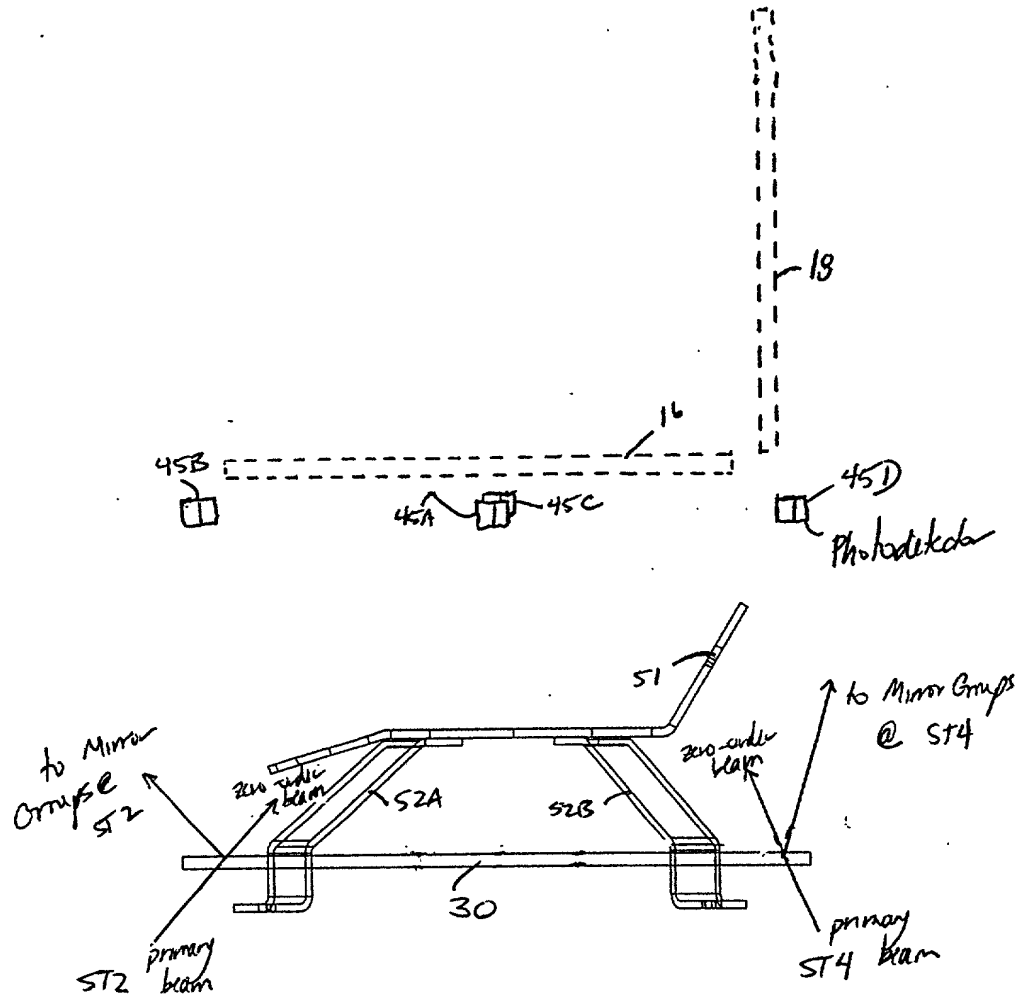


FIG. 2I2

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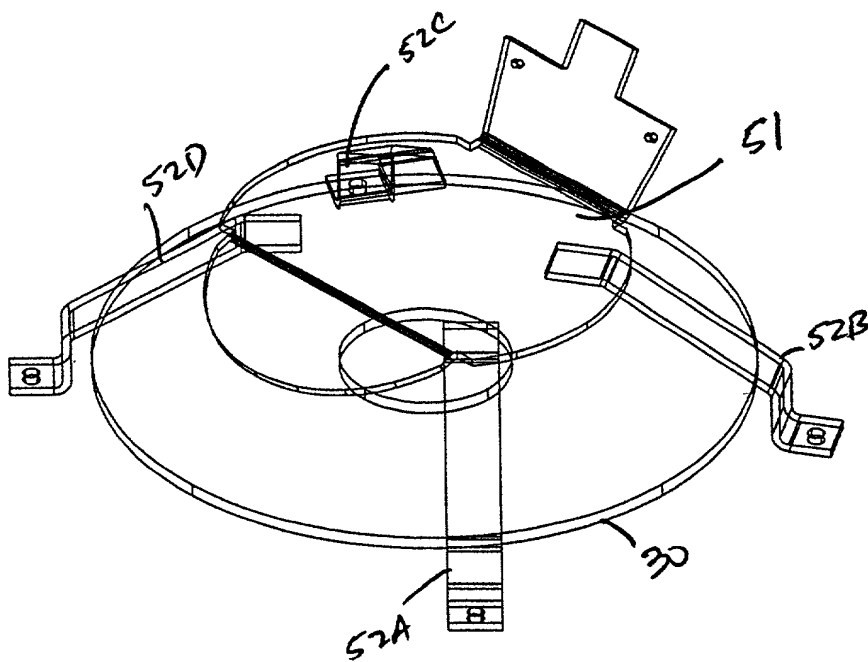


FIG 2I3

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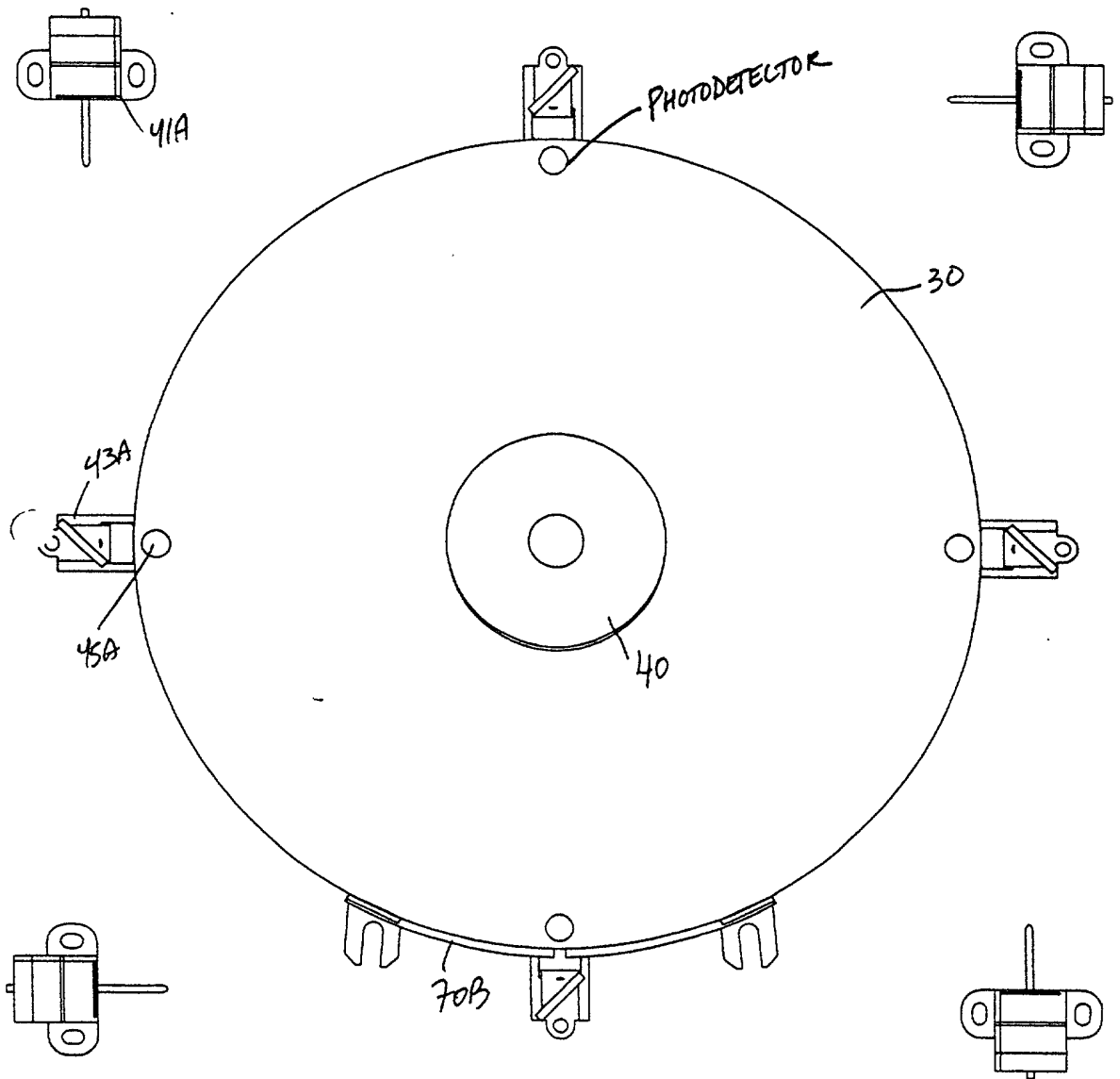


FIG. 2J1

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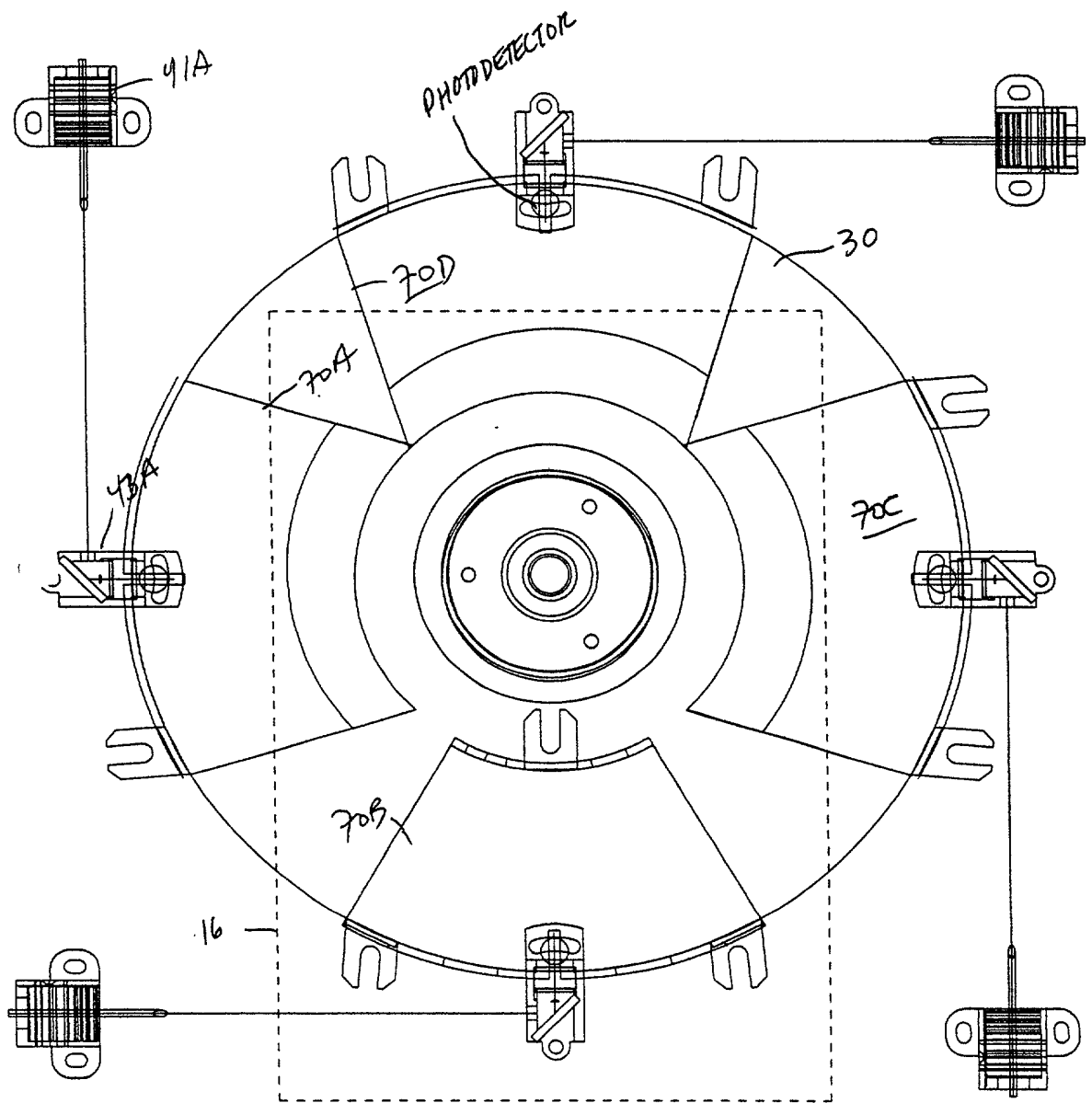


FIG. 2J2

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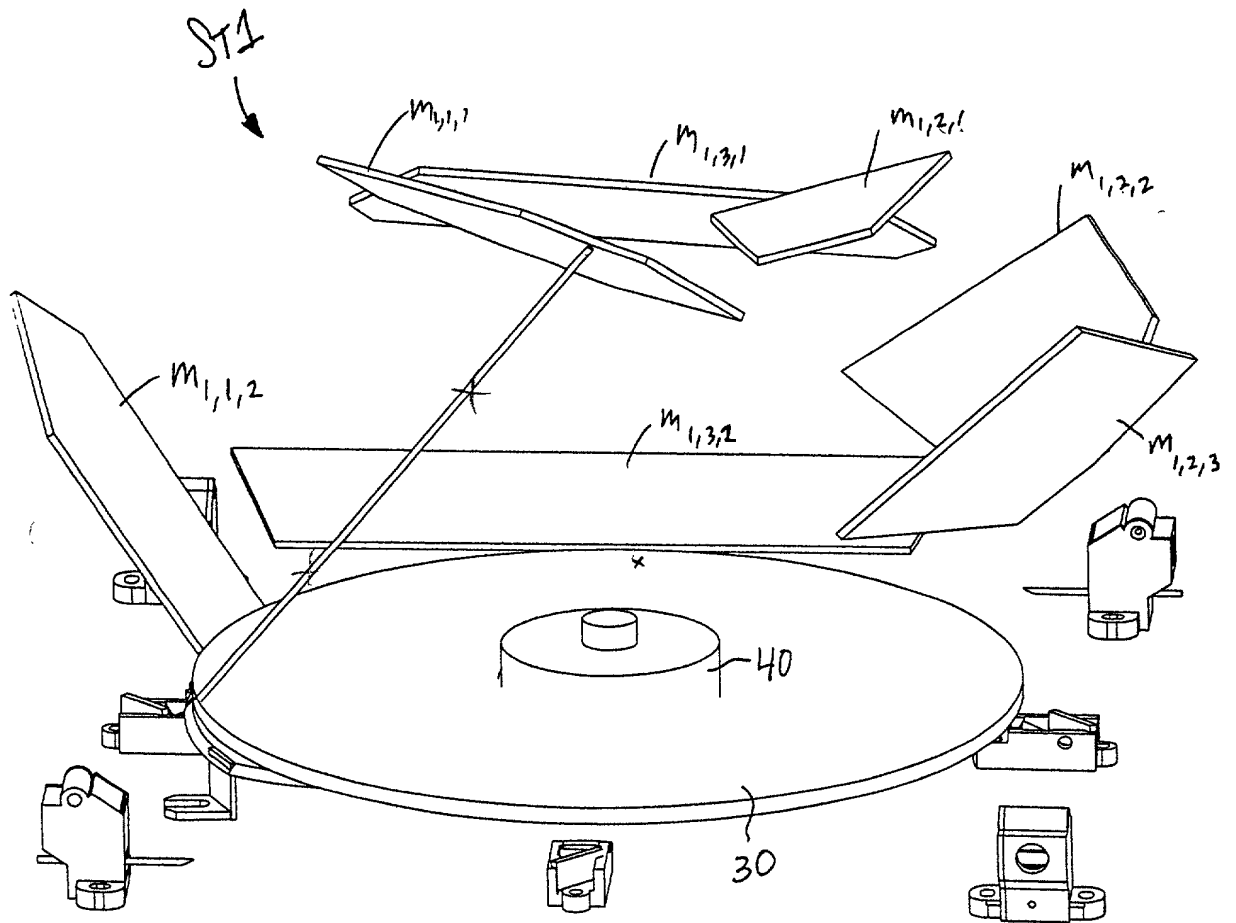


FIG. 2K

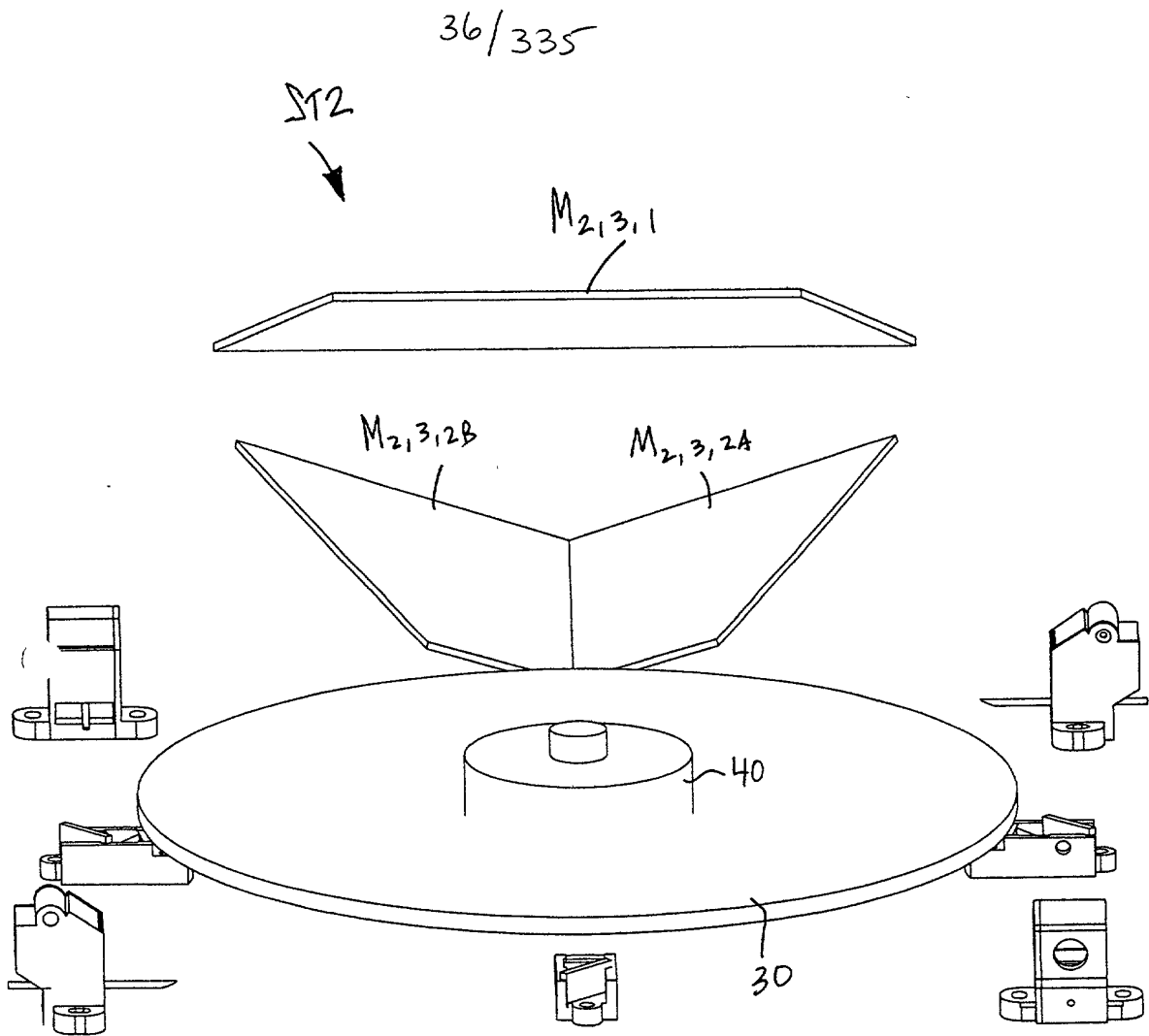


FIG. 2L

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STB

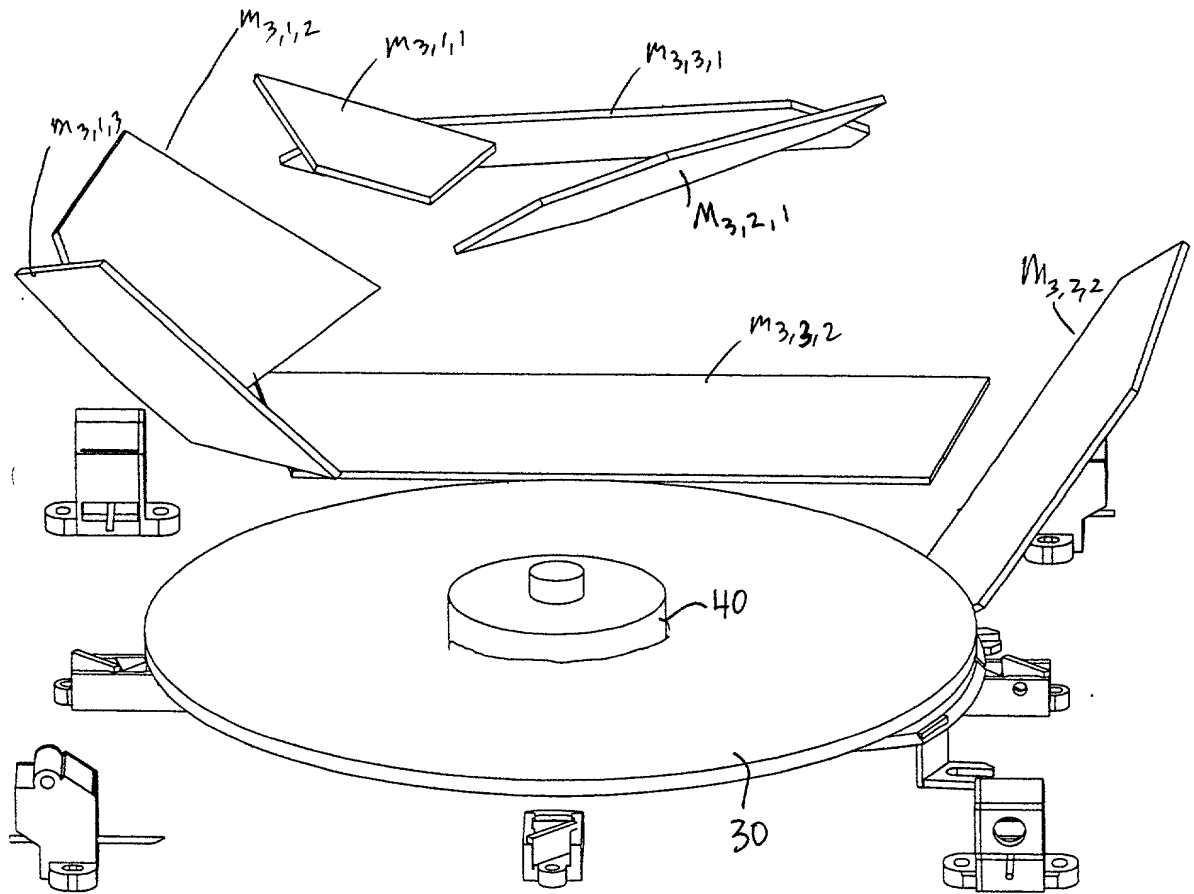


FIG. 2M

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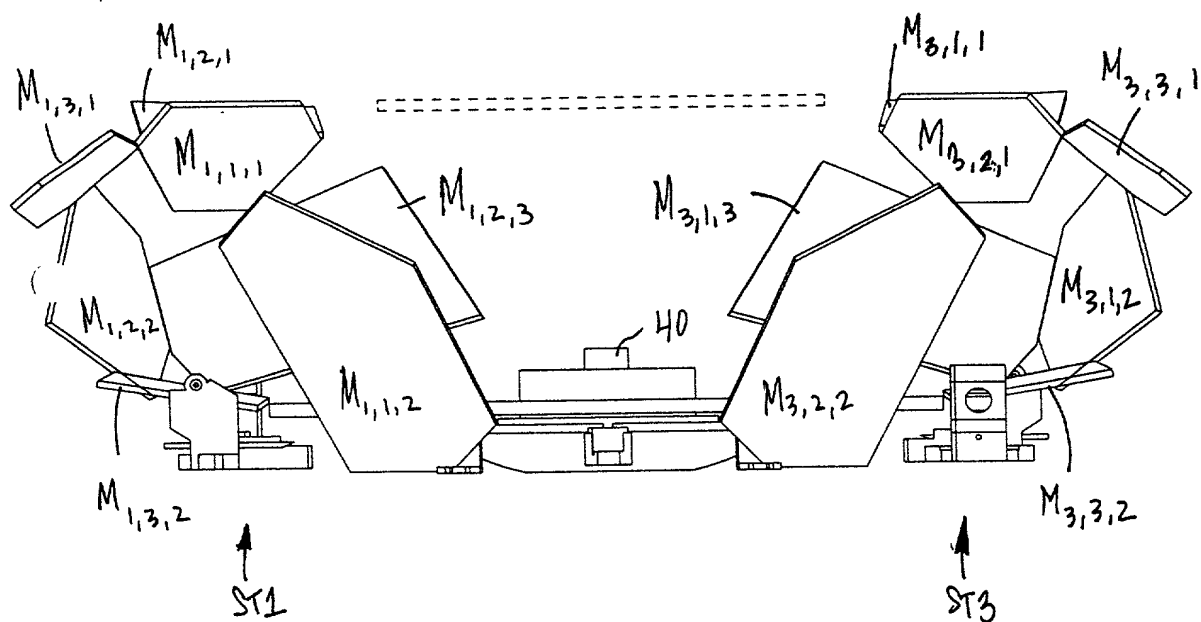


FIG. 2N

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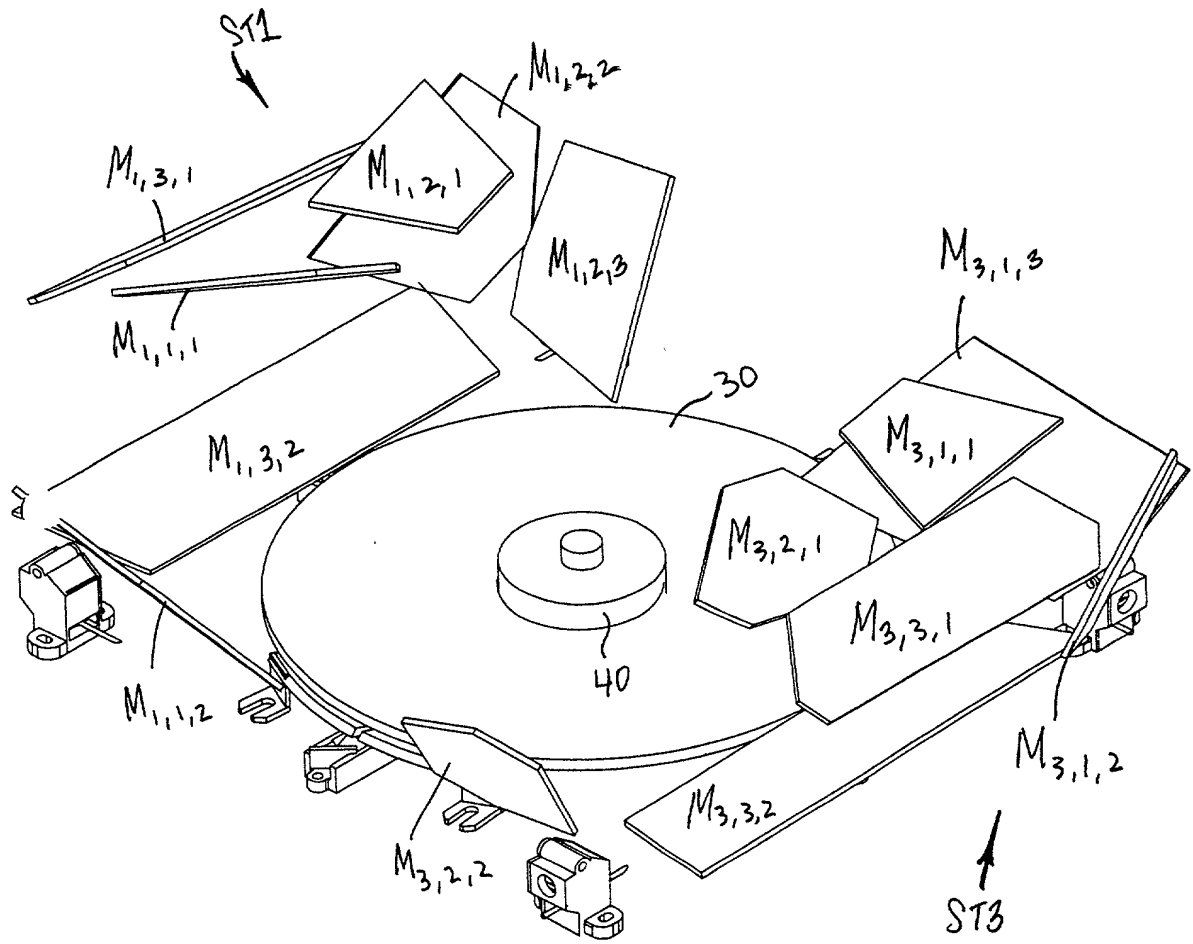


FIG. 20

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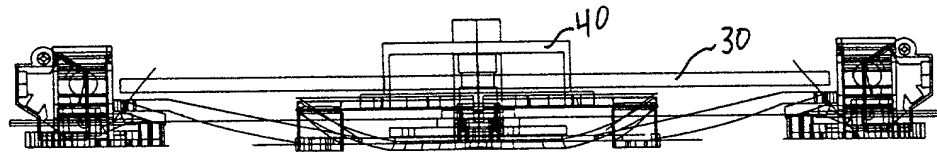
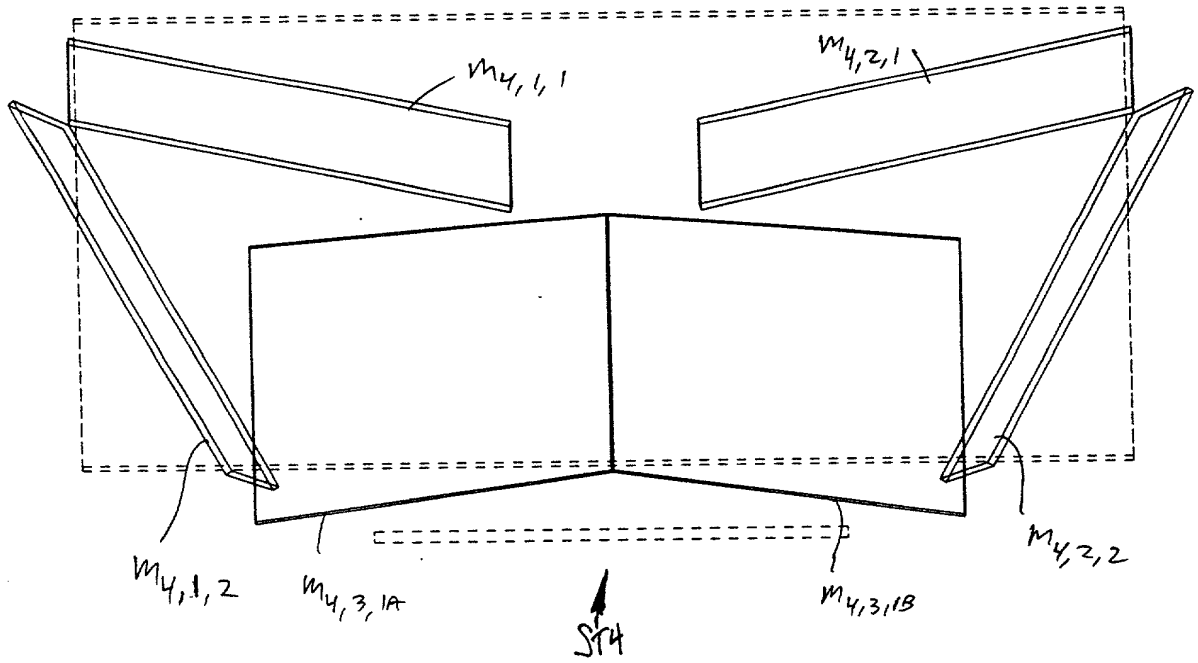


FIG. 2P

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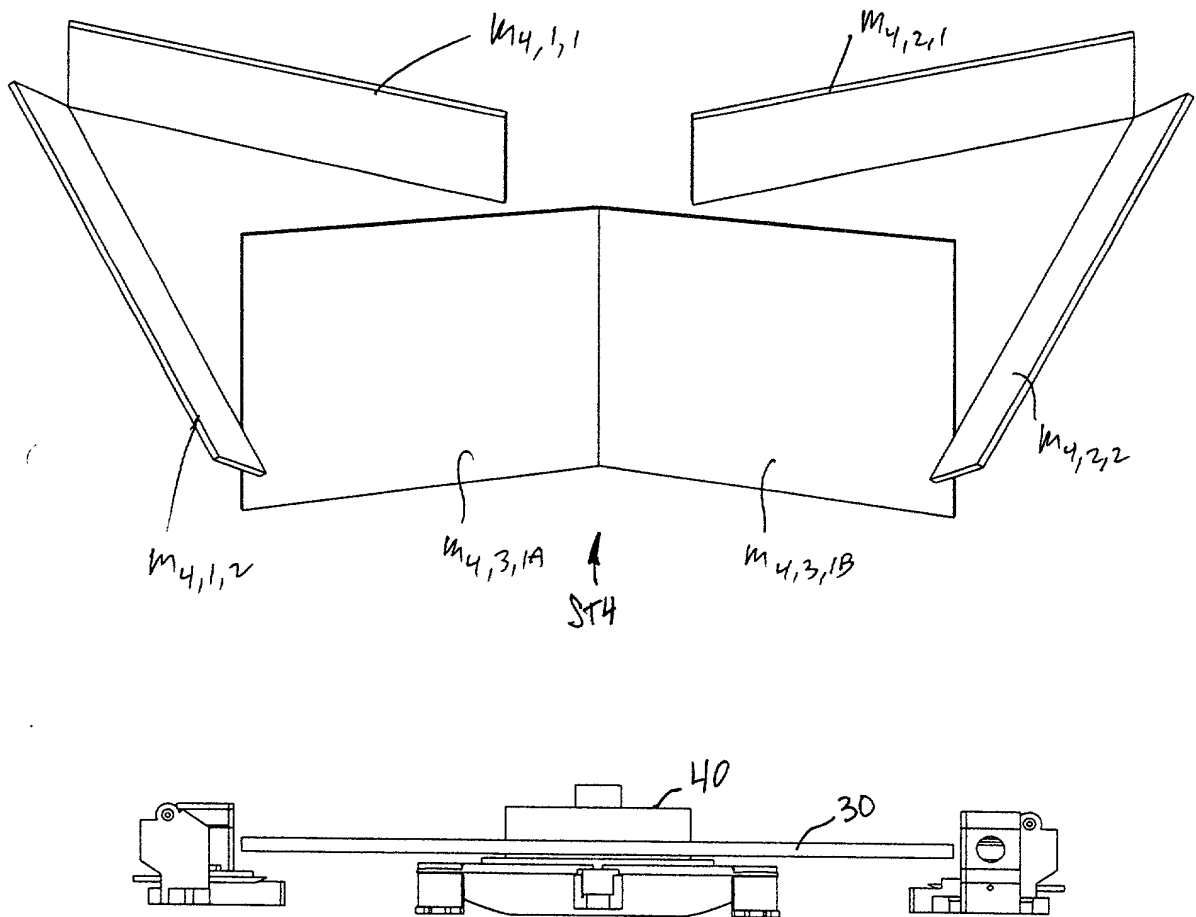


FIG. 2Q

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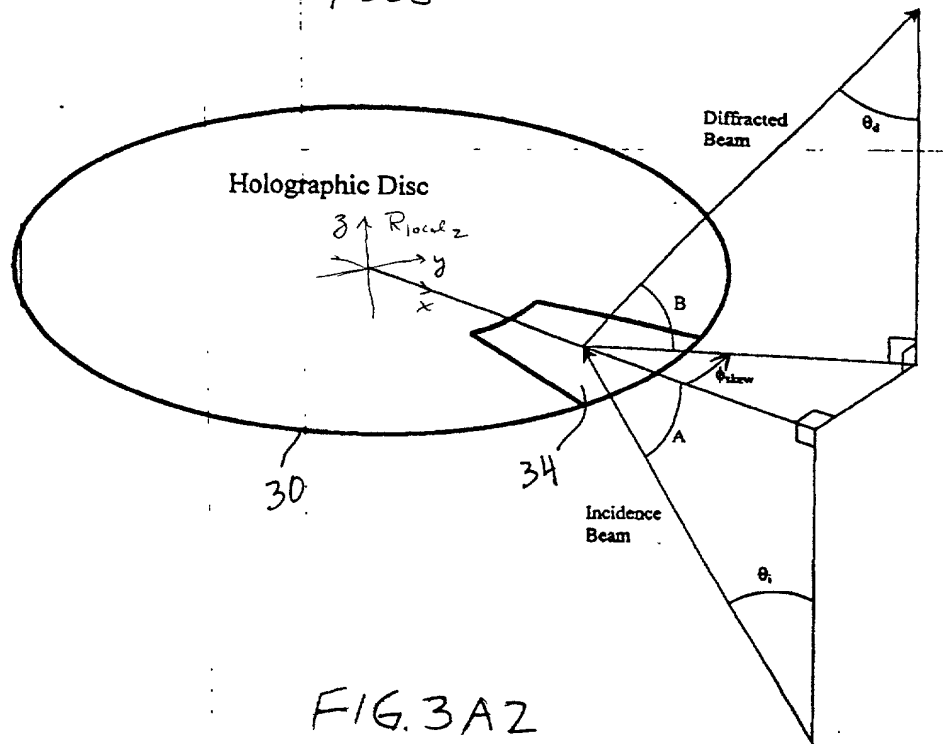


FIG. 3A2

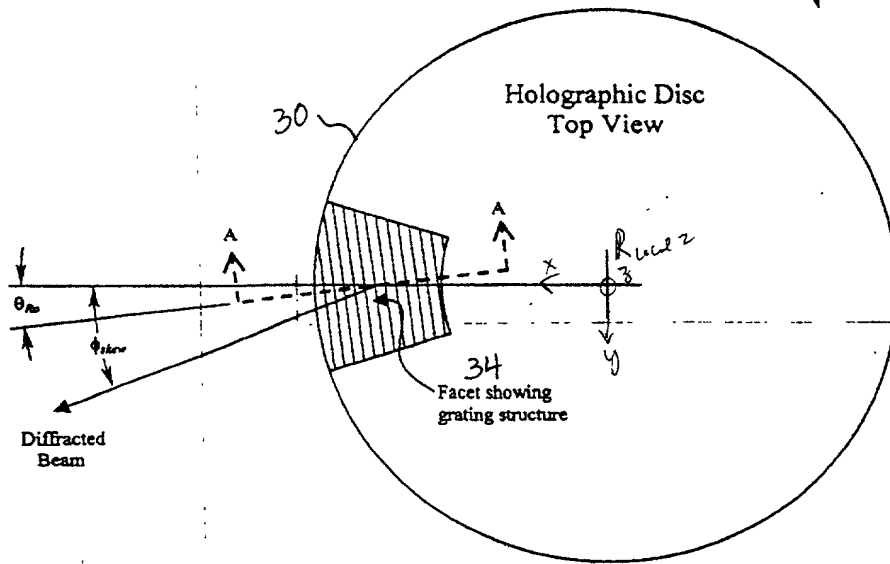


FIG. 3A3

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ELEVATION AND SKEW ANGLE CHARACTERISTICS OF FACETS ON
HOLOGRAPHIC SCANNING DISK OF THE PRESENT INVENTION

FACET GROUP NO.	G1	HIGH ELEVATION ANGLE LEFT SKEW ANGLE	FACET NO.
			7
			9
			11
	G2	HIGH ELEVATION ANGLE RIGHT SKEW ANGLE	FACET NO.
			8
			10
			12
	G3	LOW ELEVATION ANGLE NO/ZERO SKEW ANGLE	FACET NO.
			1
			2
			3
			4
			5
			6

FIG. 3A4

Figure 3B shows the results of the analysis of the data from the 1000th iteration of the program. The results are shown in the table below.

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MG2@ST1 MG1@ST1 MG3@ST1

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Station 1 (Local Co-ordinates)														
2	(Left)														
3	First Mirror	Negative skew													
4		x	y	z	x	y	z	x	y	z	No Skew (Z=1.25)				
5	M _{1,2,3}	2.55	-1.80	2.70	3.80	2.30	2.77		4.30	1.60	2.52				
6		4.15	-2.27	2.77	4.10	1.88	2.40		4.95	2.15	2.04				
7		3.95	0.23	2.05	3.10	0.80	1.80	M _{1,2,3}	5.20	2.00	1.83				
8		2.42	-0.24	2.25	2.50	-0.16	2.45		4.70	-2.10	1.87				
9	Second Mirror	2.55	-1.80	2.70	2.65	0.76	2.77		4.10	-1.60	2.40				
10					3.80	2.30	2.77		4.30	1.60	2.52				
11															
12		x	y	z	x	y	z		x	y	z				
13	M _{1,2,3}	4.00	-2.63	0.05	1.70	4.10	1.30		3.10	2.60	-0.03				
14		4.90	-1.40	0.77	3.00	4.45	1.98		4.50	3.00	0.22				
15		4.60	-3.20	2.18	M _{1,2,3}	3.40	3.99	1.50	M _{1,2,3}	4.35	-2.30	0.30			
16		3.70	-4.10	1.06	2.30	2.43	-0.63		3.10	3.00	-2.00	0.04			
17	Third Mirror	4.00	-2.63	0.05	1.40	2.57	-0.63		3.10	2.60	-0.03				
18					1.00	2.99	-0.20								
19					1.70	4.10	1.30								
20															
21	Third Mirror	x	y	z											
22		4.41	-4.10	1.10											
23	M _{1,2,3}	1.97	-3.30	2.20											
24		1.12	-1.60	0.80											
25		2.51	-2.00	0.10											
26		3.53	-2.70	0.10											
27		4.41	-4.10	1.10											
28															

FIG. 3B

Mirror Summary

Mirror Shapes

When used, this form is to be filled in by the user of the system. It is not to be filled in by the system.

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
30																
31	Station 2 (Local Co-ordinates)															
32		Negative skew														
33	First Mirror	x	y	z												
34																
35																
36																
37																
38																
39																
40																
41																
42	Second Mirror	x	y	z												
43																
44																
45																
46																
47																
48																
49																
50																
51																
52																

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1/1, 2, 3, 23

FIG. 3C

Mirror Summary

Mirror Shapes

[illegible]

mg 2053

by 3, 3, 2

[illegible]

FIG. 3D

Mirror Summary

Mirror Shapes

Station 47/335

MS 2054 MS 1054 MS 3054

MS 3, 18

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
83	Station 4 (Local Co-ordinates)															
84	First Mirror	Negative skew				Positive Skew				No Skew				No Skew		
85		x	y	z		x	y	z		x	y	z		x	y	z
86		4.90	-0.80	6.41		4.90	0.80	6.41		6.70	0.00	5.61		6.70	0.00	5.61
87		6.10	-0.80	5.65	$W_{1/2}$	6.10	0.80	5.65	$W_{1/2}$	7.40	0.00	3.32		7.40	0.00	3.32
88	$W_{1/2}$	6.00	-4.50	6.47		6.00	4.50	6.47	$W_{1/2}$	6.95	-3.00	2.90		6.95	3.00	2.90
89		4.90	-4.50	7.17		4.90	4.50	7.17	$W_{1/2}$	6.20	-3.00	5.34		6.20	3.00	5.34
90		4.90	-0.80	6.41		4.90	0.80	6.41		6.70	0.00	5.61		6.70	0.00	5.61
91																
92																
93										(Split mirror for generating two sets of horizontal lines)						
94	Second Mirror	x	y	z		x	y	z		x	y	z				
95		2.85	-3.20	3.37	$W_{1/2}$	2.85	3.20	3.37								
96		4.20	-2.80	3.23	$W_{1/2}$	4.20	2.80	3.23								
97	$W_{1/2}$	5.95	-4.50	6.46		5.95	4.50	6.46								
98		4.60	-4.95	6.68		4.60	4.95	6.68								
99		2.85	-3.20	3.37		2.85	3.20	3.37								
100																

FIG. 3E

Mirror Summary

Mirror Shapes

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*** Table of I				Dependent Parameters for both the Scanner and the Disk ***		Disk Str.		43	
Box height (inches):									
Box width (inches):				N/A		(See Note 1)		Problem items are	
Max angle B (degrees):				N/A		(See Note 2)		highlighted (red).	
Min angle B (degrees):				62.00		(See Note 3)			
Total facet angular sweep (degrees):				38.00		(See Note 3)			
				358.14		(See Note 4)			
Min (angle A - angle B) (degrees):				0.00		(See Note 6)			
Max beam speed (inches per second):				13704					
Min beam speed (inches per second):				7158					
Power at data detector (nW):				872					
Signal voltage (volts):				5.47		(See Note 7)			
Signal voltage at max DOF limits (volts):				3.45		(See Note 7)		0.91 Max bandwidth (MHz) for	
CDRH: P-avg. Class 2? Class 2A?				P-pulse Class 1?				7.5 mil bars	
YES				YES		(See Note 8)			
Single pulse				P-avg. 0.25s					
PASS				PASS		(See Note 8)			
IEC:				Pulse train correction					
				PASS					
Note 1: If this entry is highlighted (red) then the value exceeds the specified value for the box height (Cell G21). Go to cells G417 to G456 to identify the problem entries and make the necessary inner radius adjustments in Cells G215 to G254.									
Note 2: This entry is not used in the box design, but it gives an indication of the box dimensions that would be established by the width of the tops of the mirrors.									
Note 3: Generally, the B angles should range between 40 degrees and 70 degrees. Holograms with smaller or larger angles may be difficult to construct.									
Note 4: This entry must be less than, but within a few degrees of, 360 degrees. To satisfy this requirement, it may be necessary to make adjustments to the focal distances and/or the length of the scan lines.									
Note 6: This value must be greater than 0.5 degrees to avoid feedback into the laser from disk surface reflections. If it is too small, adjustments must be made to the B angles of the problem facets (See Cells X468 to X507).									
Note 7: The signal voltage must be greater than some value established by the signal processor requirements. Typically, this value should be greater than 2 volts. If this value is less than 2 volts, either the laser power must be increased or the focal distances must be decreased.									
Note 8: All CDRH/IEC entries must be YES or PASS. If not, laser power must be reduced. (Modify laser power in Cell B799.)									

FIG. 3F

C. atk.

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d = distance from disk to base of scanner (inches):													
Rotational speed of disk (rpm)													
Disk/Stratos 4.xls													
Facet	Diffraction Focal length (inches)	Geometrical Focal length (inches)	Angle A (degrees) Given	Angle B (degrees) Given	Angle of Diffraction (degrees)	Focal plane scan line		Scan Angle (degrees)	Scan mult. Factor (m)	Rotation Angle (degrees)	Accounting for dead time for laser beam	Light Collection Factor	Maximum Collection Area (ignoring notch)
						length (inches)	0						
1	12.5	12.73	52	38.00	52.00	9.750	42.61	1.62	26.24	27.39	1.00		2.28
2	11.5	11.68	52	40.00	50.00	9.750	45.95	1.62	28.35	29.50	0.80		1.81
3	12.7	12.94	52	42.00	48.00	9.750	42.00	1.58	26.66	27.81	0.92		2.09
4	11.5	11.68	52	44.00	46.00	9.750	45.95	1.57	29.19	30.34	0.71		1.62
5	12.7	12.94	52	48.00	42.00	9.750	42.00	1.50	27.97	29.12	0.79		1.79
6	12.0	12.21	52	52.00	38.00	9.750	44.22	1.46	30.28	31.43	0.64		1.47
7	14.7	15.08	52	58.00	32.00	9.750	36.69	1.31	27.99	29.14	0.87		1.97
8	14.7	15.08	52	58.00	32.00	9.750	36.69	1.31	27.99	29.14	0.87		1.97
9	13.5	13.80	52	60.00	30.00	9.750	39.71	1.30	30.65	31.80	0.71		1.61
10	13.5	13.80	52	60.00	30.00	9.750	39.71	1.30	30.65	31.80	0.71		1.61
11	14.8	15.19	52	62.00	28.00	9.750	36.46	1.25	29.19	30.34	0.83		1.88
12	14.8	15.19	52	62.00	28.00	9.750	36.46	1.25	29.19	30.34	0.83		1.88

FIG. 3G1

D. , etc.

[illegible]

FIG. 3G2

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DiskStr: a

*** Modified Exposure Angles to Correct for Post-processing Residual Gelatin Swell ***																		
DiskStratos 4.xls																		
Percent gelatin swell (from measurements) delta-ut:																		
Facet	Exposure angles at 488 nm			Exposure angles to compensate for swell			650 nm											
	Reference	Object	Beam	Reference	Object	Beam	Reference	Object	Beam	gamma(sw)	gamma(0)	A	B	C	Z	alpha-0	beta-0	
	(degrees)	(degrees)	(degrees)	(degrees)	(degrees)	(degrees)												
1	25.13	36.99		23.85	40.50					-4.08	-4.90	1.99		0.17	0.69	0.26	15.33	
2	25.45	37.42		24.34	38.70					-3.54	-4.25	1.99		0.15	0.68	0.27	15.12	
3	25.78	35.82		24.83	36.88					-2.99	-3.58	1.99		0.12	0.67	0.27	15.93	
4	26.12	34.20		25.35	35.04					-2.41	-2.90	1.99		0.10	0.66	0.28	16.25	
5	26.81	30.90		26.41	31.31					-1.23	-1.48	2.00		0.05	0.63	0.29	16.90	
6	27.53	27.53		27.53	27.53					0.00	0.00	2.00		0.00	0.60	0.30	17.58	
7	28.64	22.38		29.28	21.77					1.92	2.31	2.00		-0.08	0.56	0.32	18.65	
8	28.64	22.38		29.28	21.77					1.92	2.31	2.00		-0.08	0.56	0.32	18.65	
9	29.02	20.64		29.89	19.83					2.58	3.10	1.99		-0.11	0.55	0.33	19.01	
10	29.02	20.64		29.89	19.83					2.58	3.10	1.99		-0.11	0.55	0.33	19.01	
11	29.40	18.89		30.50	17.89					3.25	3.90	1.99		-0.14	0.53	0.33	19.37	
12	29.40	18.89		30.50	17.89					3.25	3.90	1.99		-0.14	0.53	0.33	19.37	

FIG. 3I

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Figure 3J shows the spot size of the beam at the detector for the various values of the focal length of the mirror.

L atos_4

*** Analysis of the Focus Shift and Out-of-focus Spot Size for Converging Reference Beam ***										
(Not applicable for Stratos)										
Convergence of the reference beam:										
Focal length of the reference mirror:										
Distance from parabolic mirror to detector:										
Facet	Design focal length (mm)	Par. Mirror Eff. width (mm)	Required foc. length (mm)	Object distance (mm)	Image distance (mm)	Image shift (mm)	Spot size at detector (mm)			
							0.88			
1	317.50	40 404.42		-14858.75	59.05	-0.95	0.64	Distance (Cell E821) may have to be adjusted so that the maximum spot size at the detector is approximately the same when the 1/2 depth of field value is negative as it is when the 1/2 depth of field value is positive. (The 1/2 depth of field value is located at Cell G19)		
2	292.10	40 364.09		31841.43	58.71	-1.29	0.88			
3	322.58	40 412.69		-11828.19	59.11	-0.89	0.60			
4	292.10	40 364.09		31841.43	58.71	-1.29	0.88			
5	322.58	40 412.69		-11828.19	59.11	-0.89	0.60			
6	304.80	40 384.03		-48230.76	58.89	-1.11	0.75			
7	373.38	40 499.67		-4485.04	59.60	-0.40	0.27			
8	373.38	40 499.67		-4485.04	59.60	-0.40	0.27			
9	342.90	40 446.55		-6818.26	59.33	-0.67	0.45			
10	342.90	40 446.55		-6818.26	59.33	-0.67	0.45			
11	375.92	40 504.23		-4375.15	59.62	-0.38	0.25			
12	375.92	40 504.23		-4375.15	59.62	-0.38	0.25			

FIG. 3J

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Focal distances and distances to the window for the Stratos scanner
LDD 12/7/99 RPH

Facet	Diffraction Focal length (inches)	Distance to			Operator side		
		horizontal window (inches)	Difference (inches)	vertical window (inches)	horizontal window (inches)	Difference (inches)	
1	12.5	8.5	4	10.2	2.3	8	4.5
2	11.5	8.8	2.7	10.2	1.3	8.42	3.08
3	12.7	9.2	3.5	10.2	2.5	8.85	3.85
4	11.5	9.5	2	10.2	1.3	9.25	2.25
5	12.7	9.8	2.9	10.2	2.5	9.7	3
6	12	10.2	1.8	10.2	1.8	10.1	1.9
7	14.7	10.6	4.1	14.1	0.6		
8	14.7	9.7	5	14.1	0.6		
9	13.5	11.2	2.3	13.8	-0.3		
10	13.5	9.8	3.7	13.8	-0.3		
11	14.8	11.1	3.7	13.6	1.2		
12	14.8	9.6	5.2	13.6	1.2		

The horizontal window lines from the even numbered vertical facets 8, 10, 12 are near the vertical window.

FIG. 3K

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* CDRH/IEC Calculations to Verify that the Scanner Meets the Laser Class Requirements ***									
The number of overlapping lines (N-overlap) must be determined from the scanner data. A safe assumption for our scanners is to consider that two scan lines are overlapped ONLY when the difference between their diffraction angles (B) is less than 2 degrees. All else being equal, the slowest scan lines (largest angle B) will be the worst case scan lines.									
N-overlap:	1								
Motor speed (rpm):				5200					
Alpha-min (radians):				0.0015	(from standard)				
FWHM P-divergence of laser (deg.):				8	(Linked from Trnc spreadsheet)				
FWHM S-divergence of laser (deg.):				30	(Linked from Trnc spreadsheet)				
Focal length of collimating lens (mm):				6.1	(Linked from Trnc spreadsheet)				
Angle of incidence at MF plate (deg.):				29.23					
Angle of diffraction at MF plate (deg.):				42.12					
X-p (mm):				0.87					
X-s (mm):				3.93					
Average source dimension (mm):				2.40					
Distance to aperture (mm):				200	(actual distance or 200 mm, whichever is greater)				
Alpha (radians):				0.012					
C6:				7.996					
Laser power at window (mW)									
tc (200) 7 mm transit time at d = 200 mm (seconds)									
ti (actual) 7 mm transit time at actual d (seconds)									
P x ti (Joules)									
Facet									Facet count
1	0.86	3.95856E-05	3.95856E-05	3.95856E-05	0.0000339				1
2	0.86	3.96549E-05	3.96549E-05	3.96549E-05	0.0000341				1
3	0.86	4.08001E-05	4.08001E-05	4.08001E-05	0.0000351				1
4	0.86	4.08315E-05	4.08315E-05	4.08315E-05	0.0000352				1
5	0.86	4.28115E-05	4.28115E-05	4.28115E-05	0.0000370				1
6	0.87	4.40086E-05	4.40086E-05	4.40086E-05	0.0000381				1
7	0.87	4.90358E-05	4.90358E-05	4.90358E-05	0.0000425				1
8	0.87	4.90358E-05	4.90358E-05	4.90358E-05	0.0000425				1
9	0.87	4.96126E-05	4.96126E-05	4.96126E-05	0.0000430				1
10	0.87	4.96126E-05	4.96126E-05	4.96126E-05	0.0000430				1
11	0.87	5.14525E-05	5.14525E-05	5.14525E-05	0.0000446				1
12	0.87	5.14525E-05	5.14525E-05	5.14525E-05	0.0000446				1

FIG. 3L1

FIG. 3L2

Sums:		0.000C DiskStc	0.0000446 4a	These values are the sums of the worst case (largest) overlap values
Duty Cycle:	0.004459213			
Paverage is the sum of the overlap P1 x ti products divided by the sum of the ti times times the duty cycle Paverage is, therefore, the sum of the overlap P1 x ti products times the rps of the motor.				
CDRH calculations and results				
		Class 1	Class 2?	Class 2A?
Pavg. (mW):	0.003869		YES	YES
P (single pulse) (mW): (Maximum allowed)	8.27			
P (single pulse) (Actual)	0.87	YES		
IEC calculations and results				
IEC condition A (Single pulse)				
P (single pulse) (mW): (Maximum allowed)	70.6			PASS/FAIL
IEC condition B (average power in a 0.25 second pulse train)				
Pavg. allowed (mW):	7.92			PASS/FAIL
Pavg. scanner (mW):	0.0039			PASS
IEC condition C (pulse train correction factor) (For this calculation, you need to insert the sum of the pulse times in the overlapping scan lines)				
T-total (seconds): (sum of pulse times in overlap scan lines)	0.000051			
Pmax (mW):	66.1			
Number of pulses in train:	21.67			
Correction factor:	0.4635			
Pmax (PT corrected)(mW):	30.63			PASS/FAIL
Pw (including overlap)	0.87			PASS

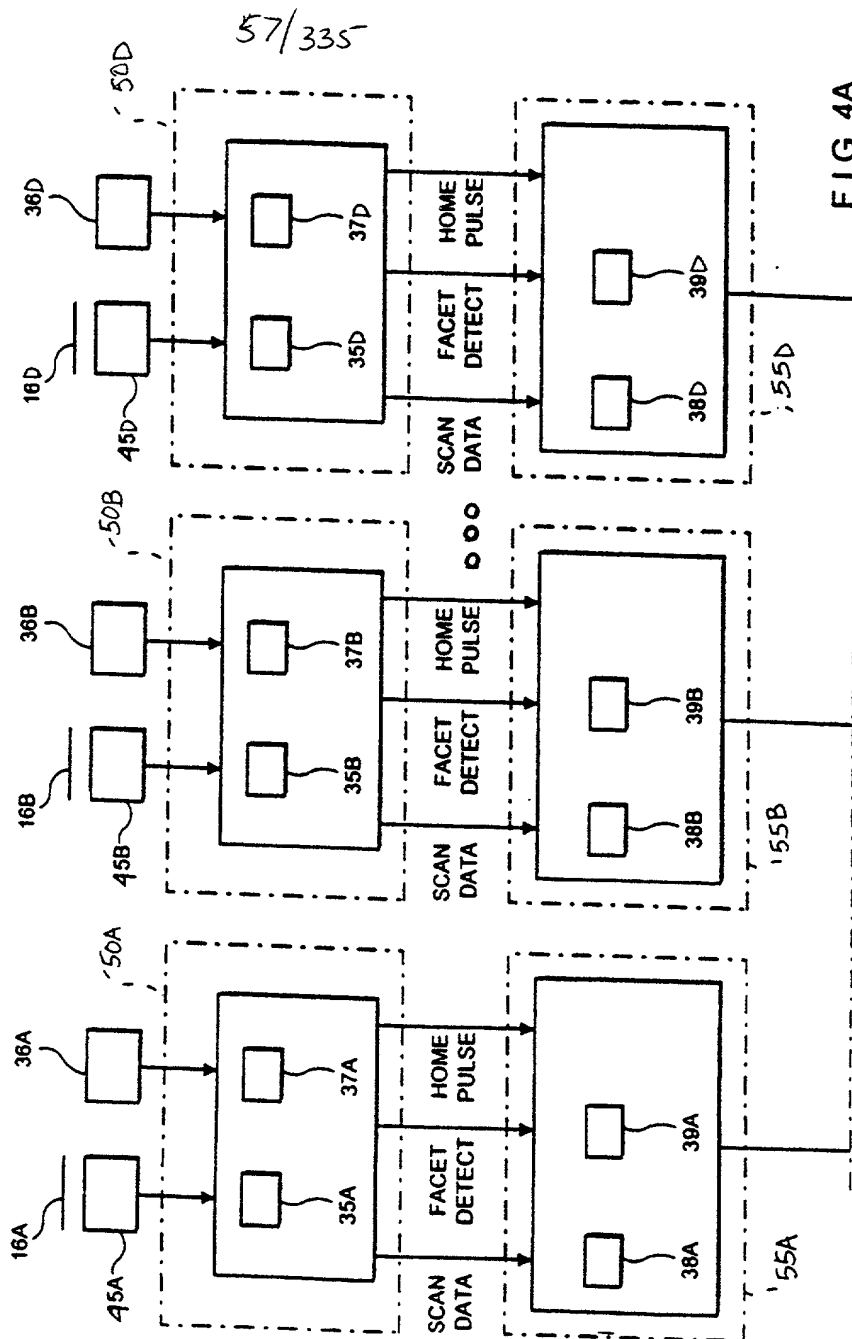
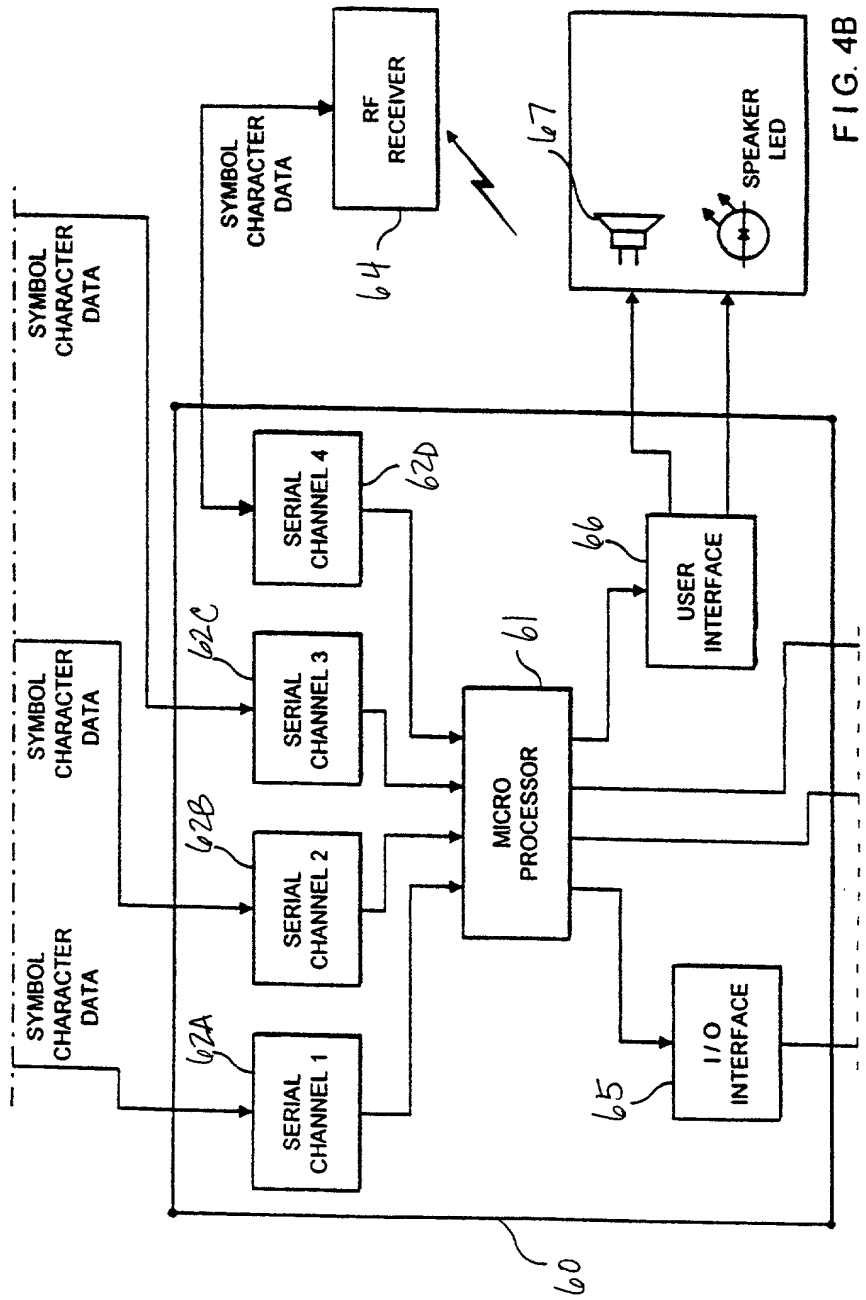


FIG. 4A

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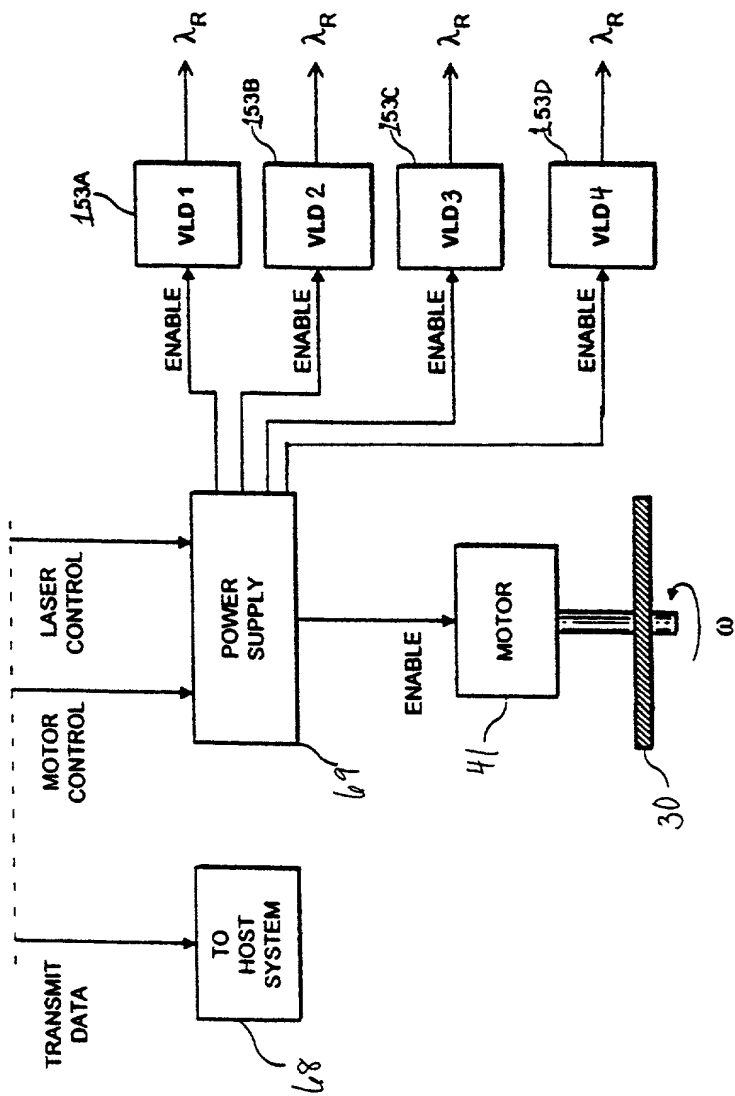


FIG. 4C

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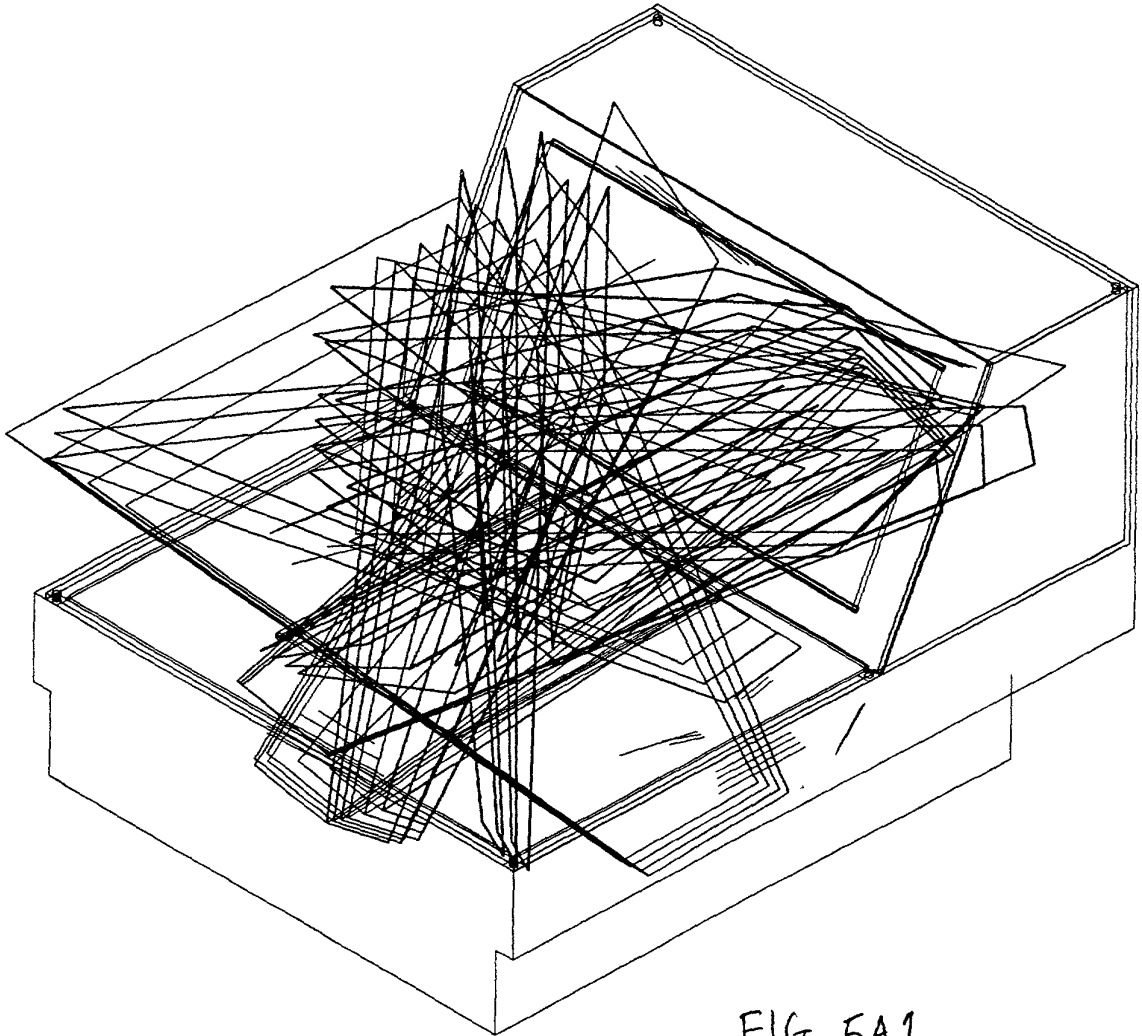


FIG. 5A1

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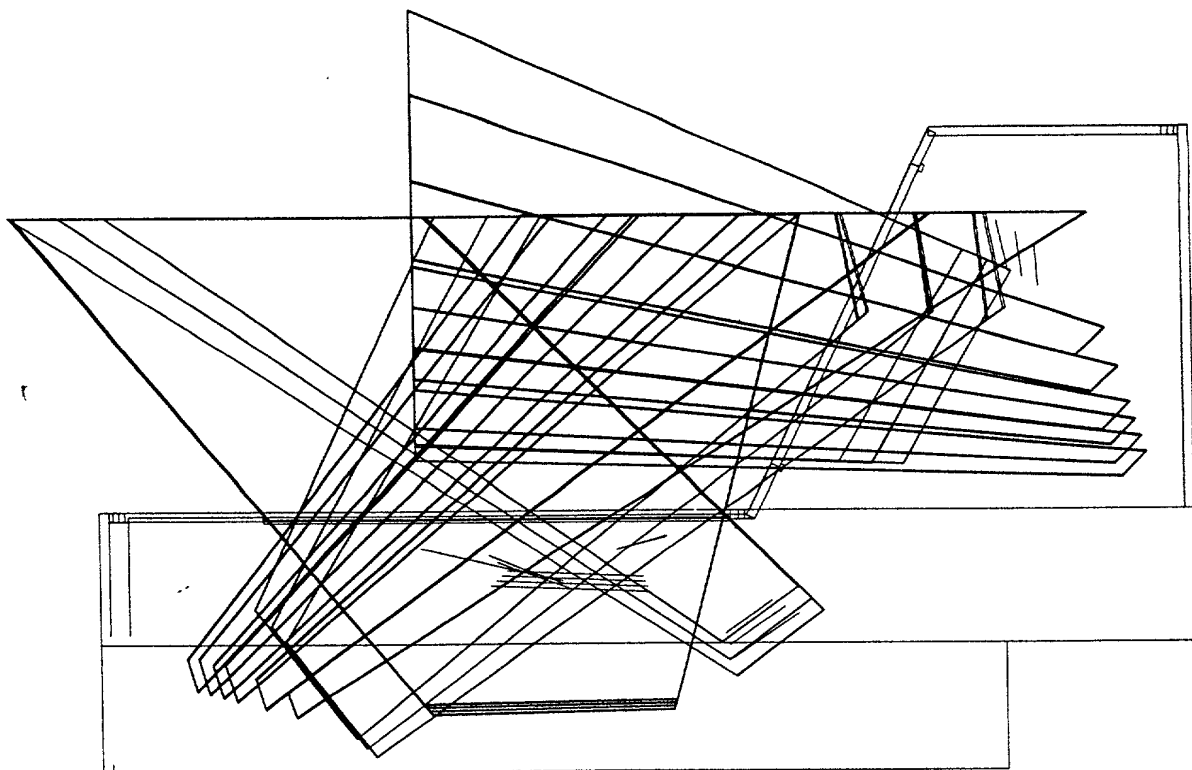


FIG. 5A2

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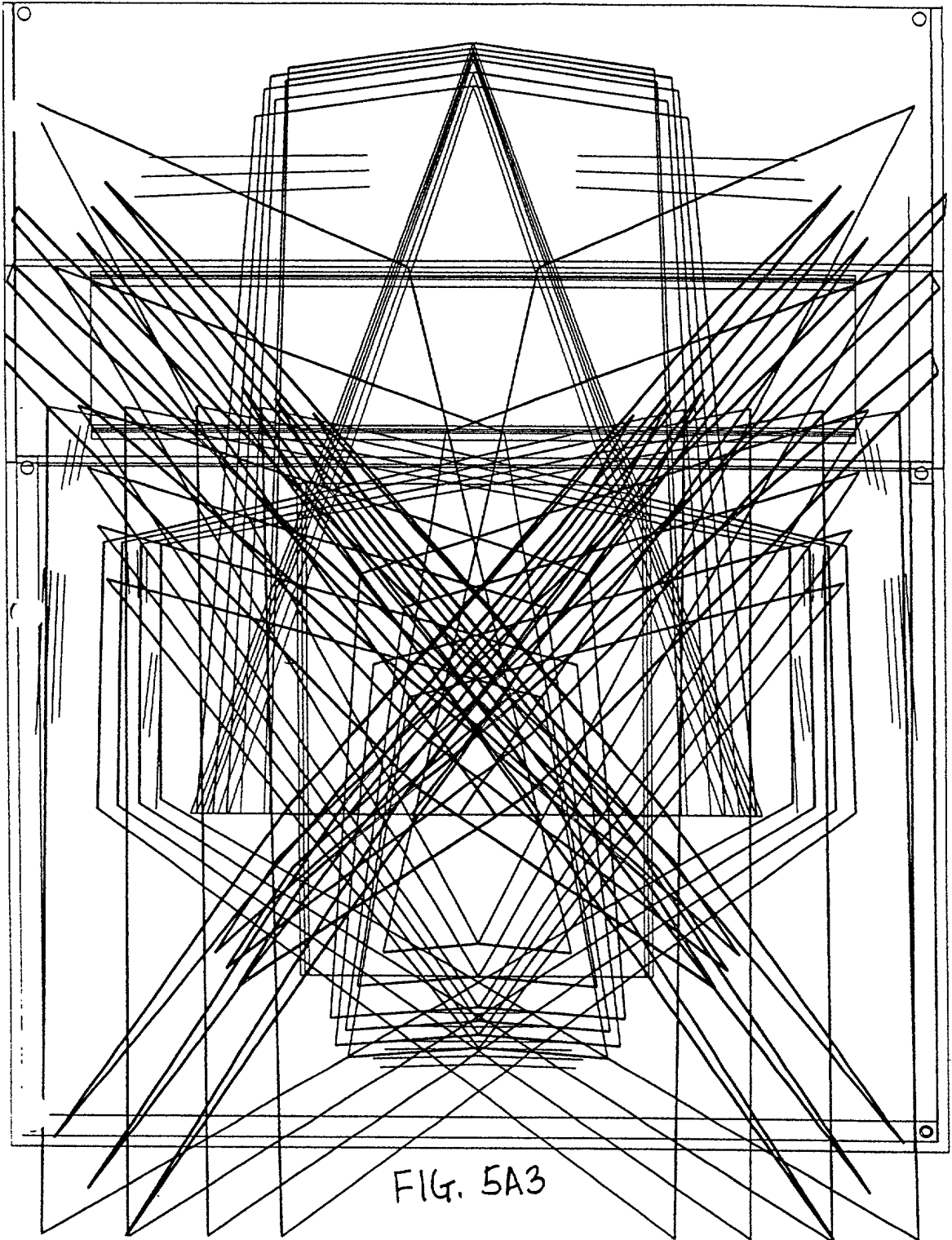


FIG. 5A3

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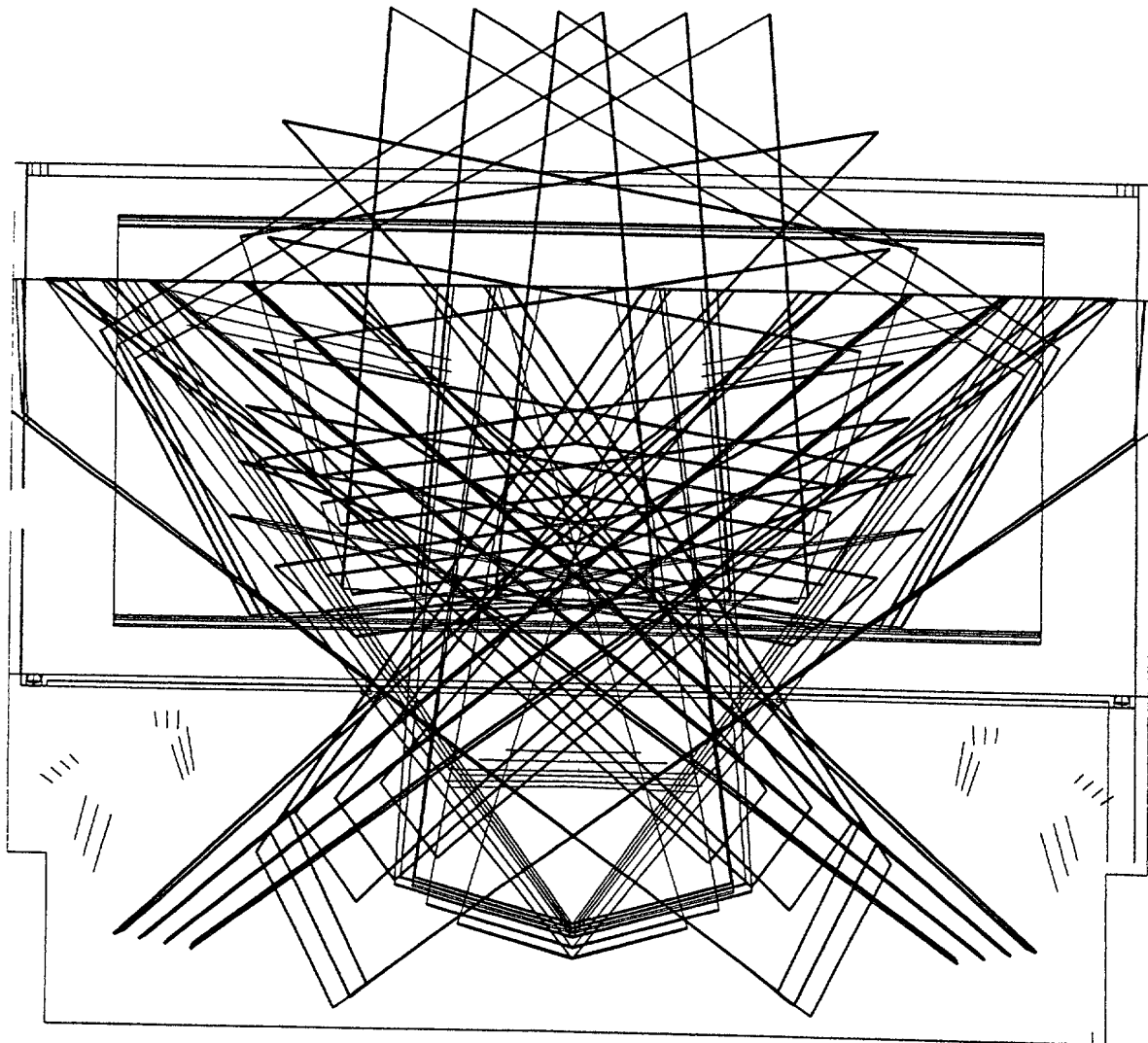


FIG. 5A4

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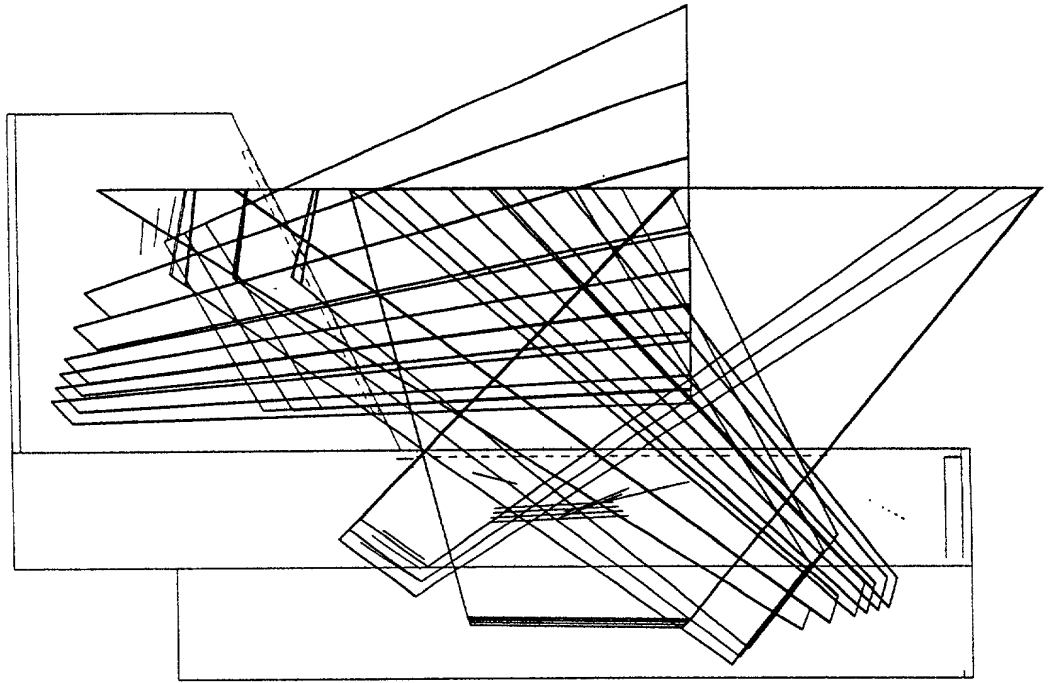


FIG. 5A5

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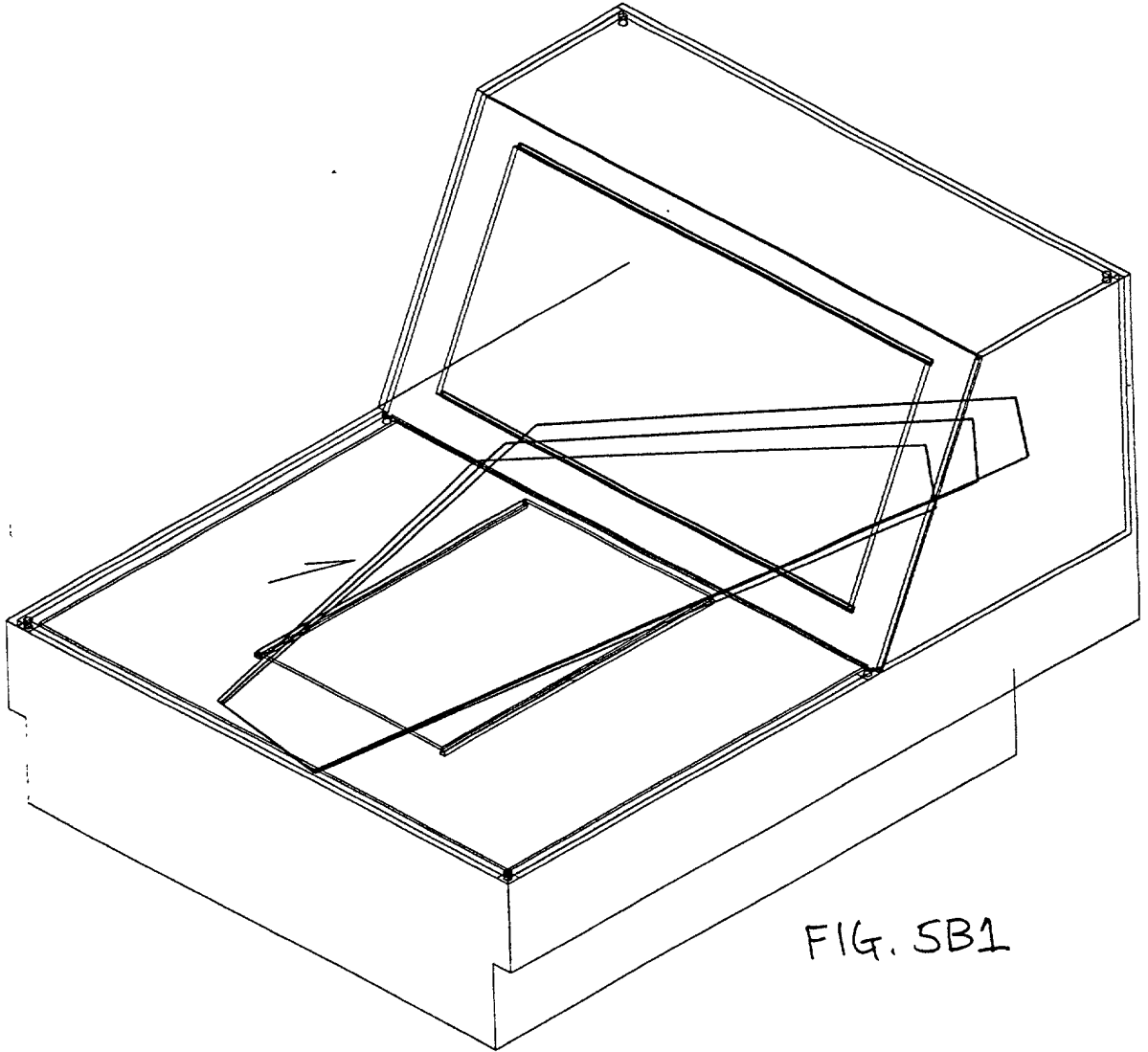


FIG. 5B1

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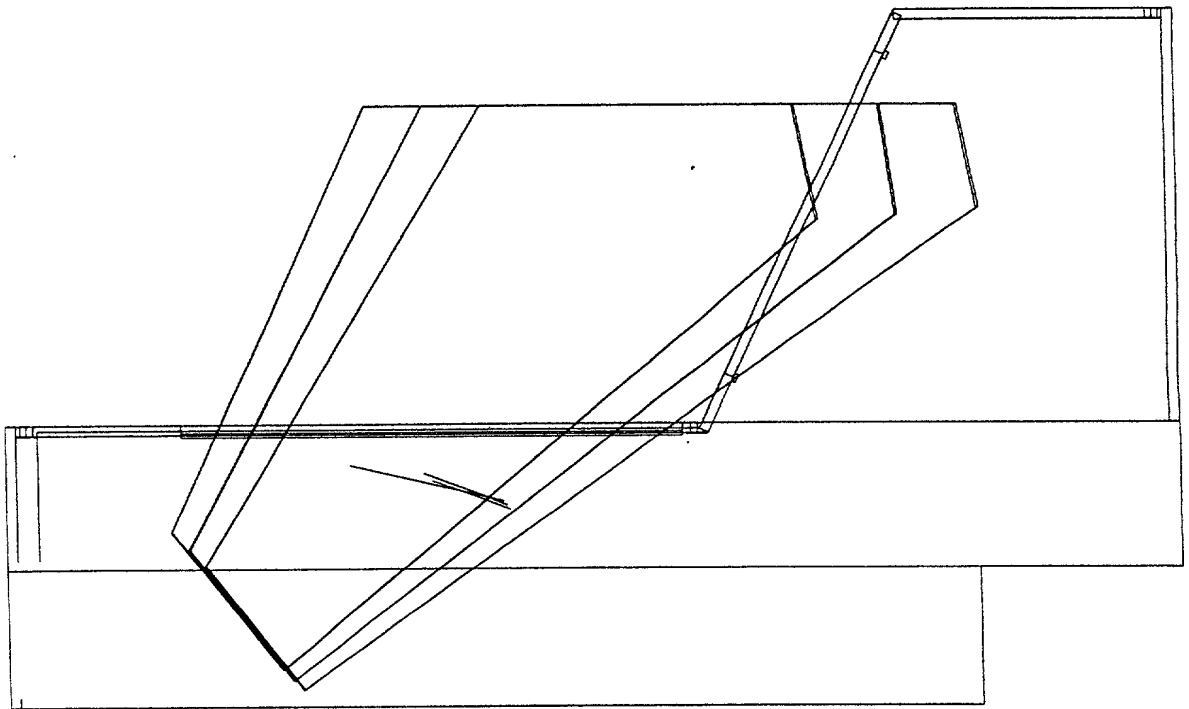


FIG. 5B2

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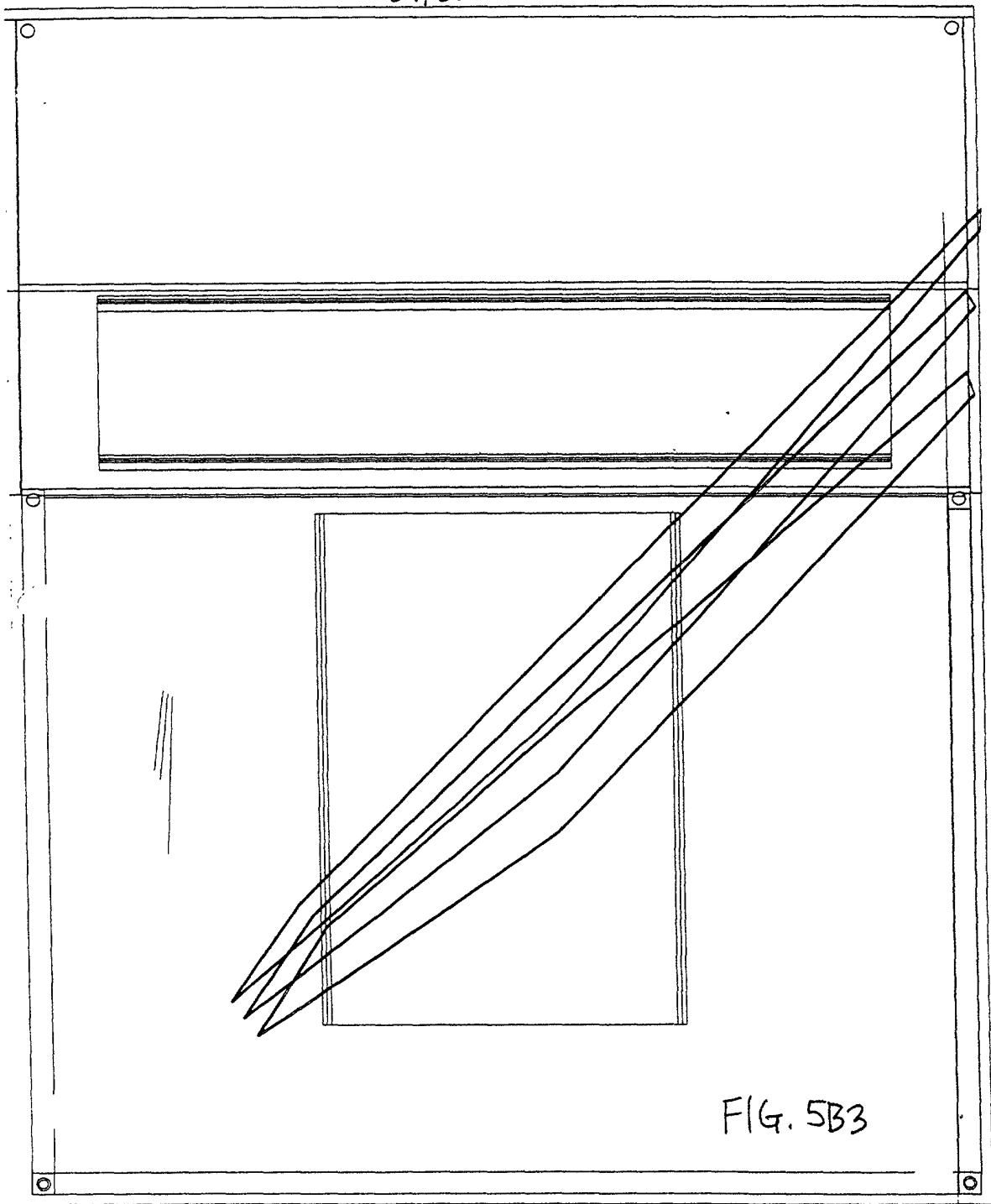


FIG. 5B3

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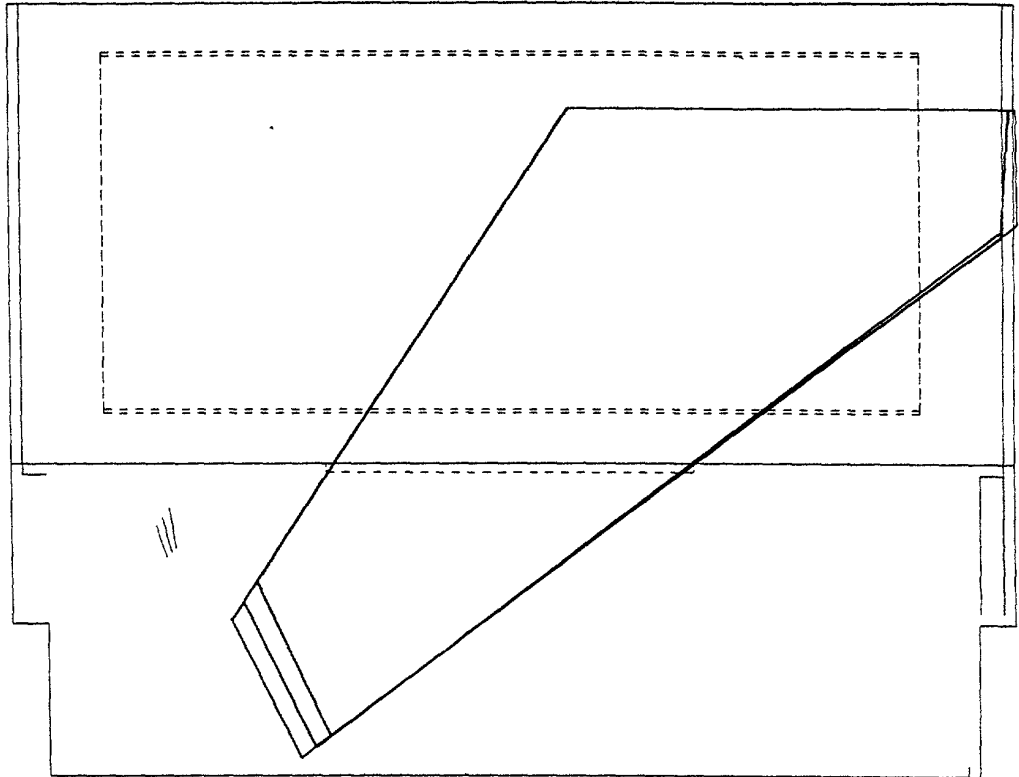


FIG. 5B4

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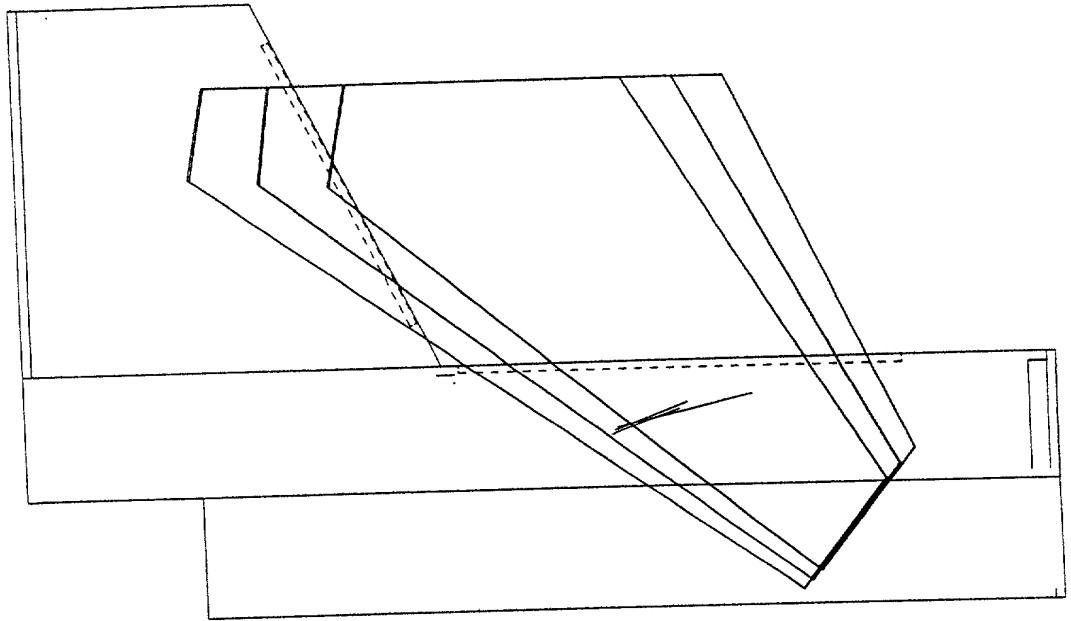


FIG. 5B5

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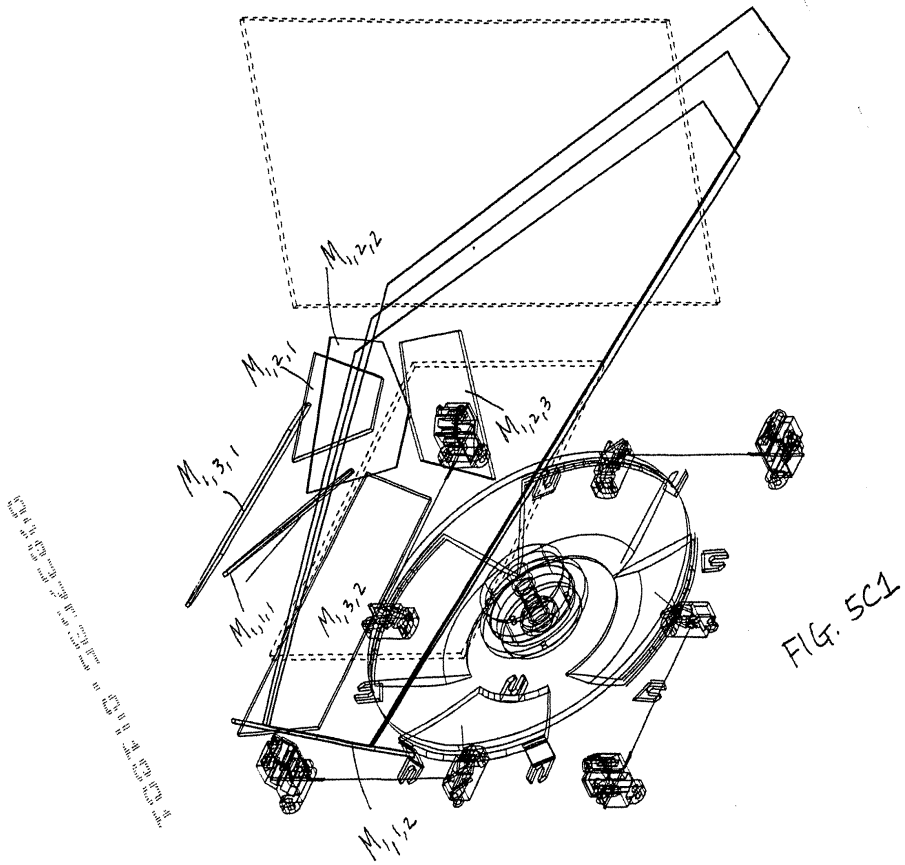
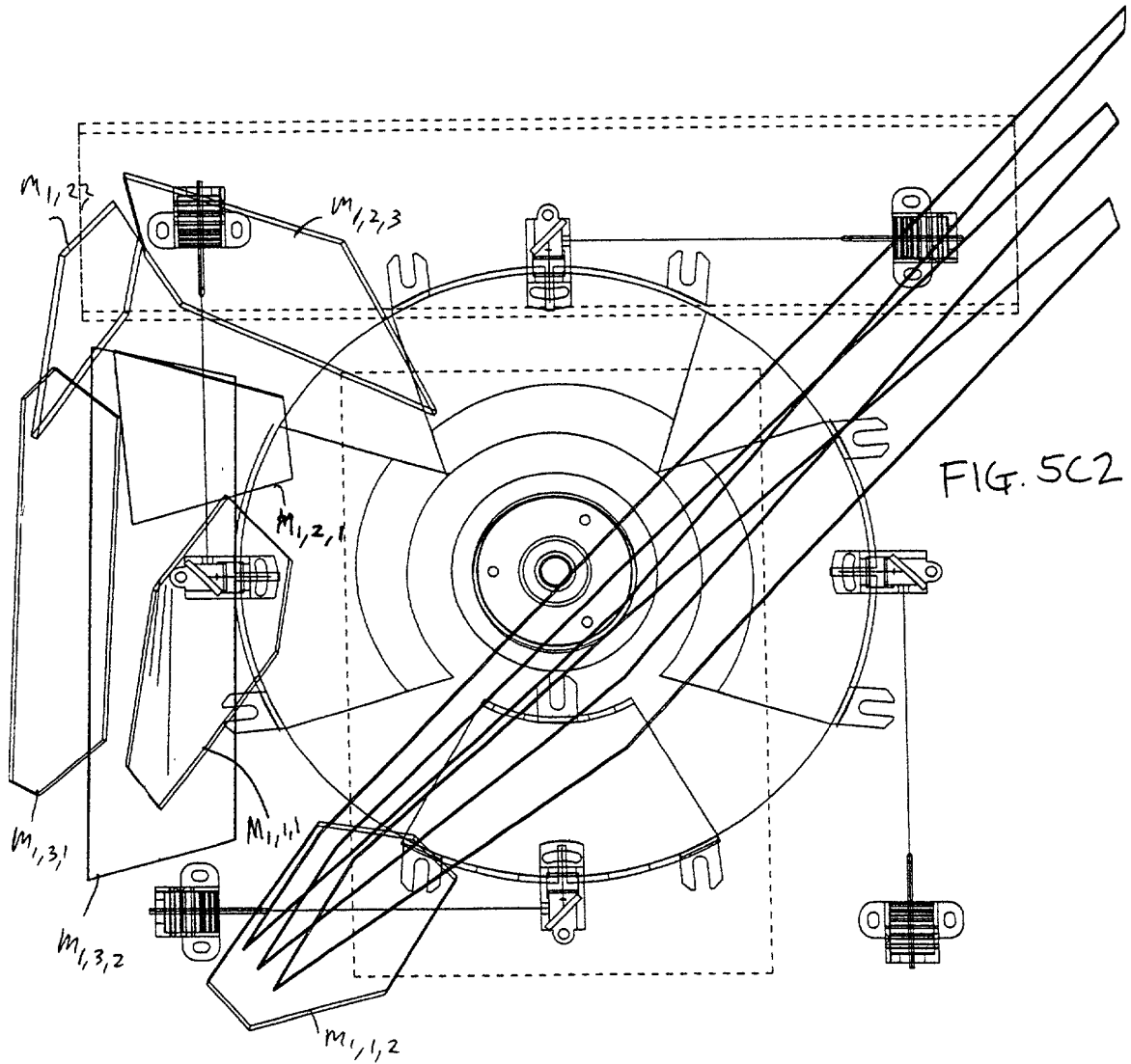


FIG. 5C1

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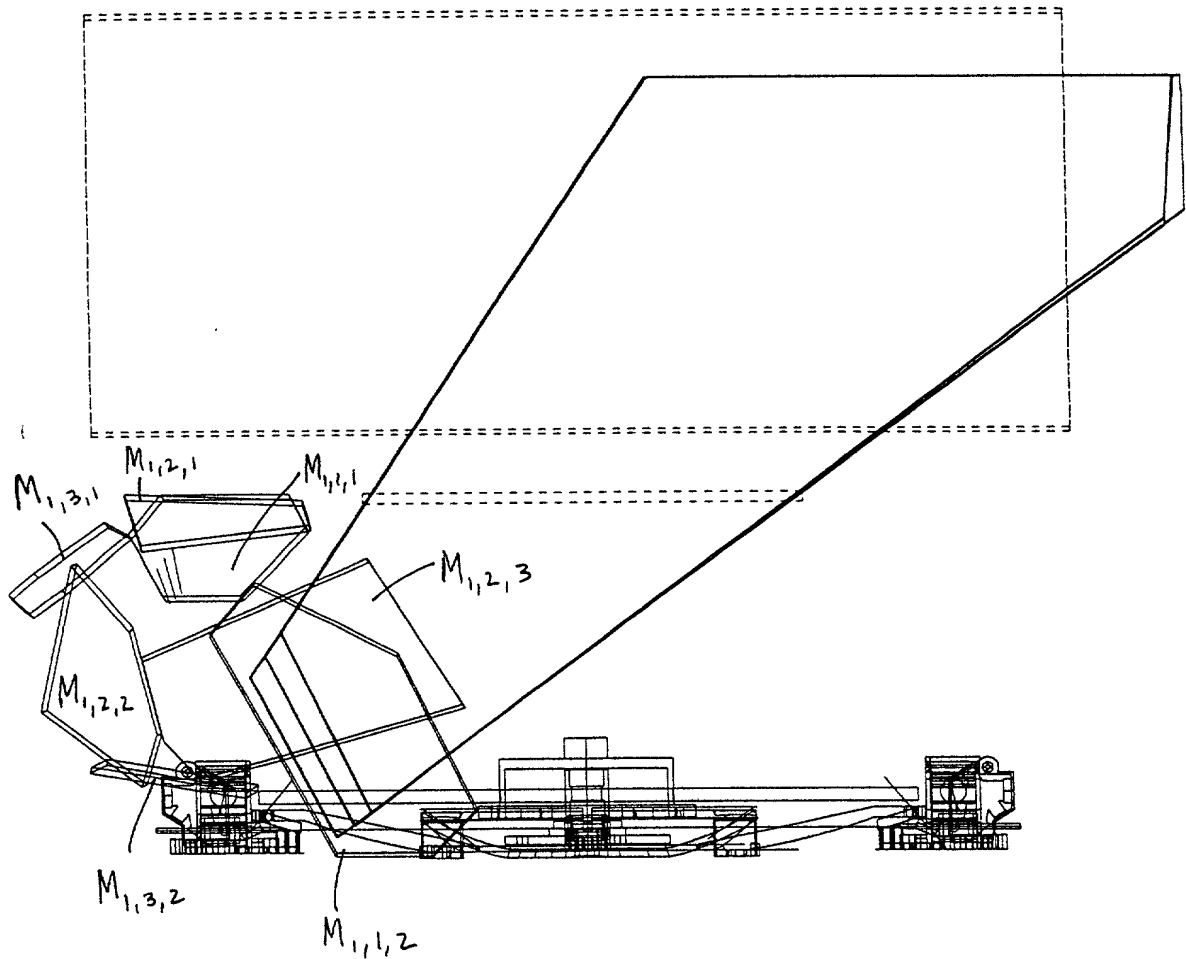


FIG. 5C3

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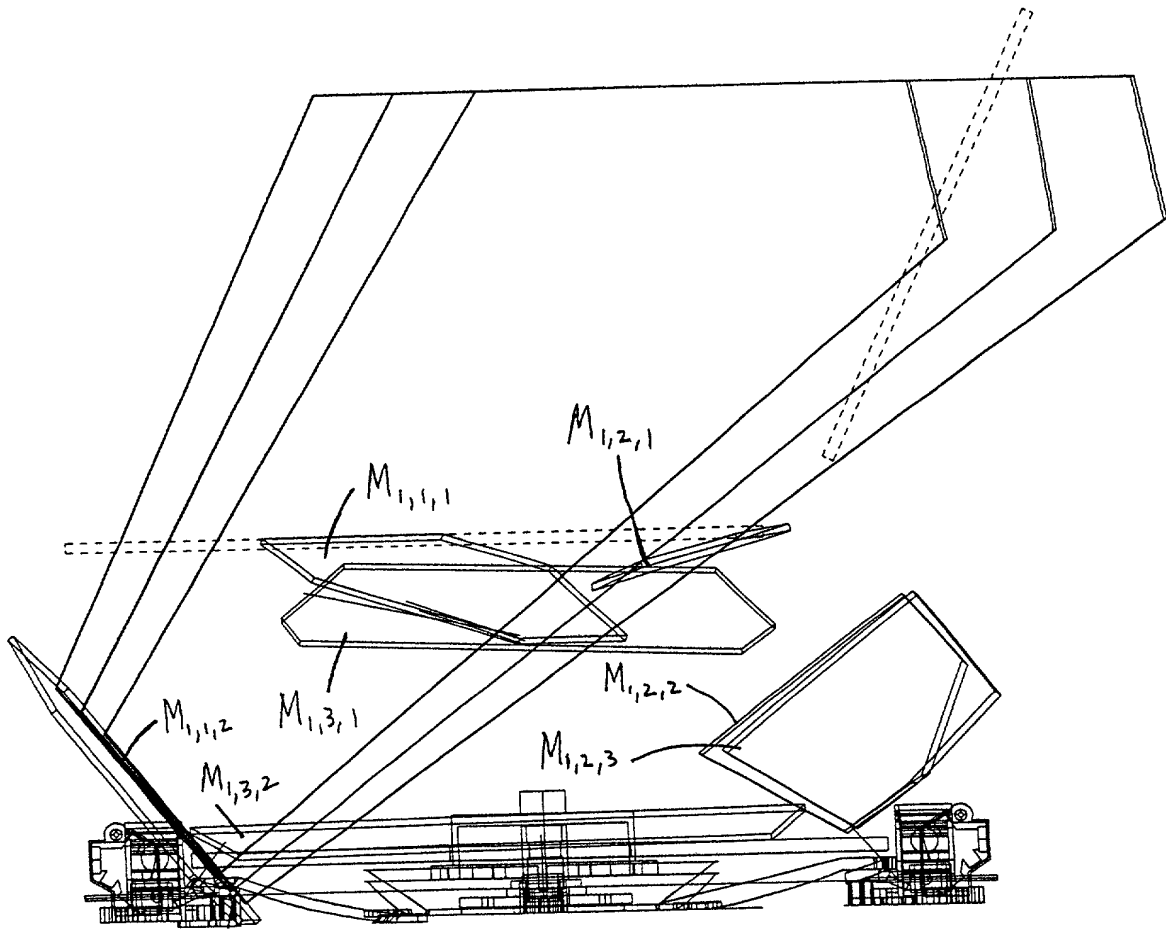


FIG. 5C4

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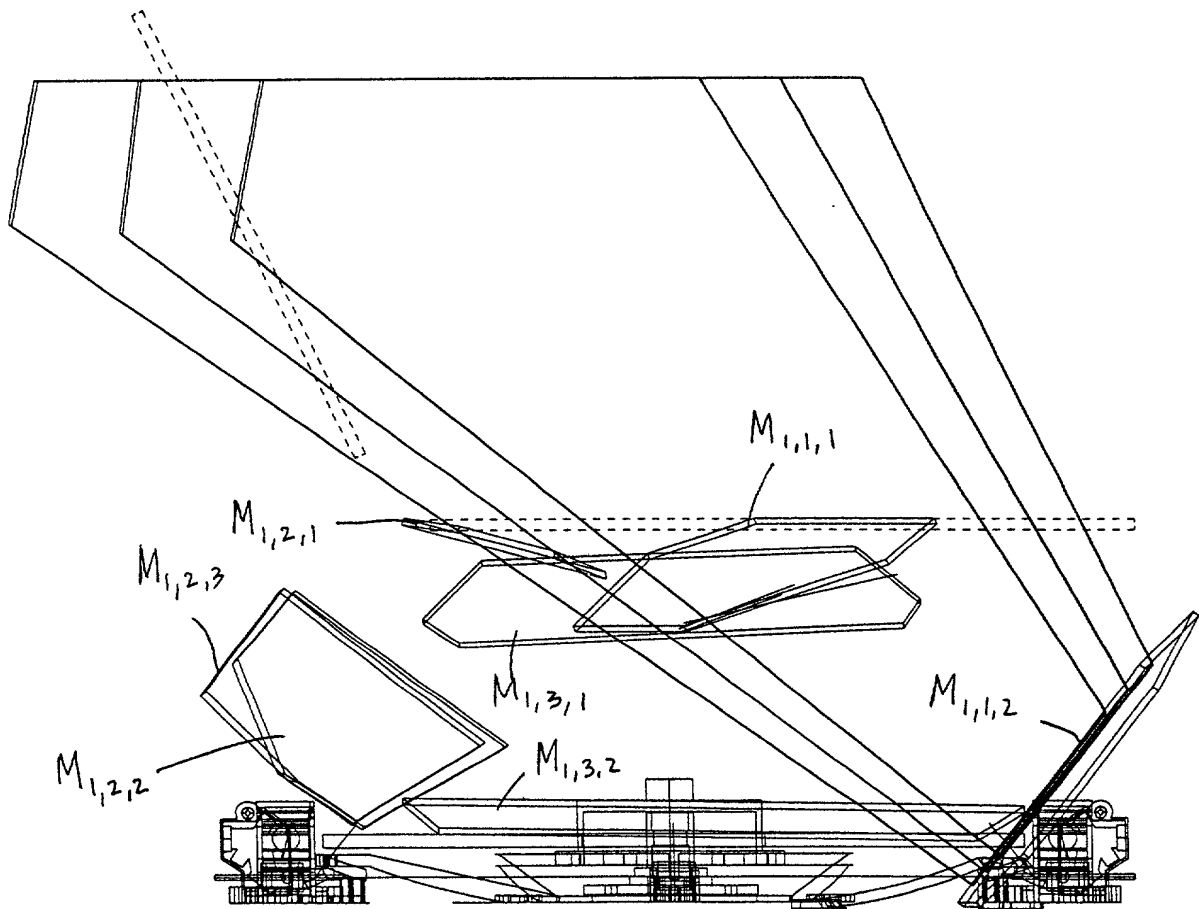


FIG. 5C5

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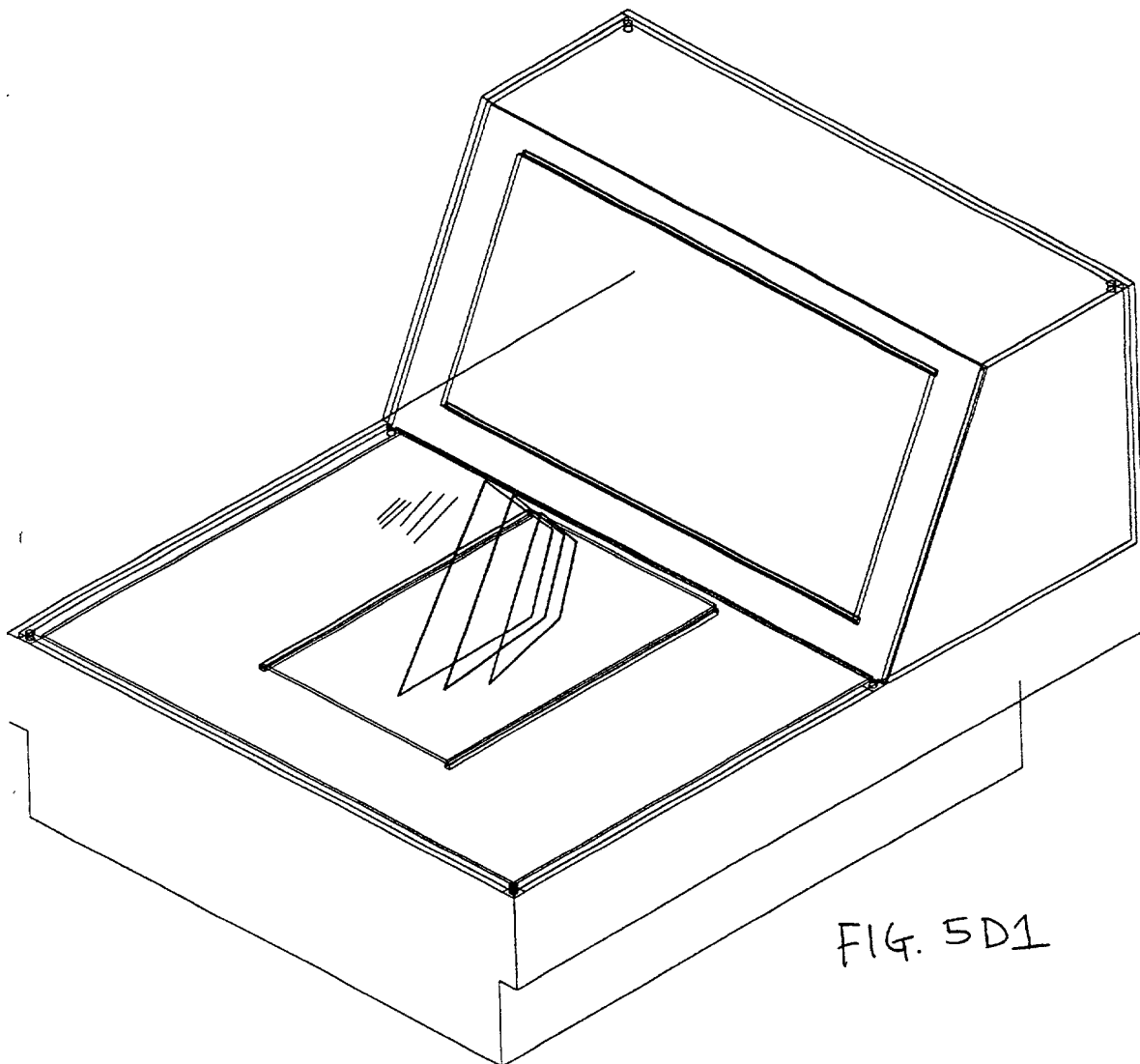


FIG. 5D1

FIG. 5D1 is a perspective view of the box 500 with the lid 510 open, showing the internal structure 520.

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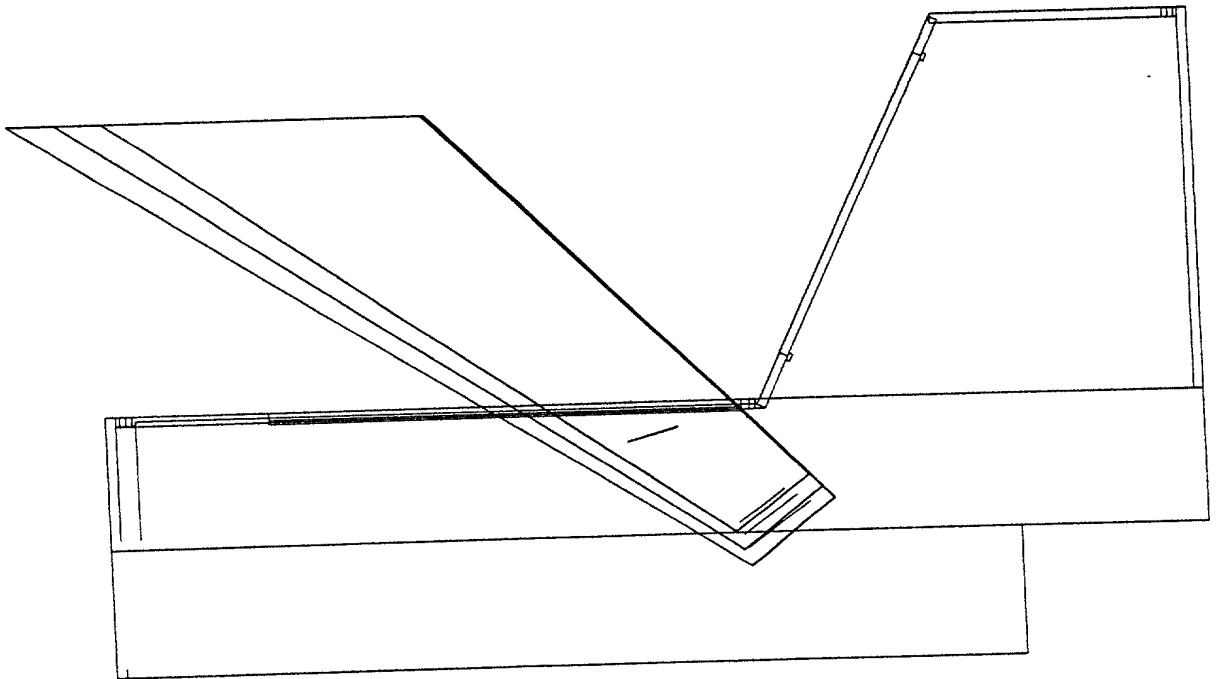


FIG. 5D2

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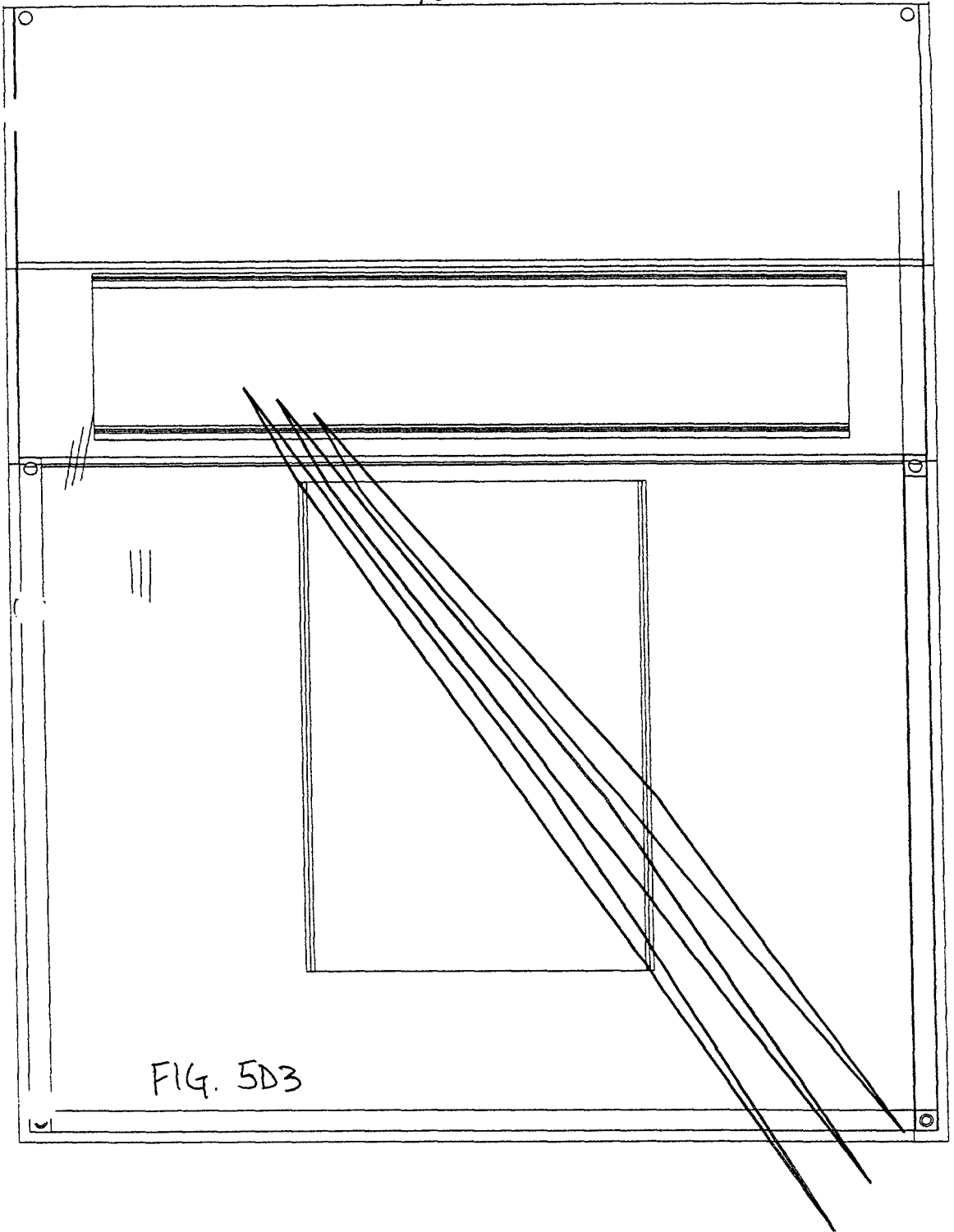


FIG. 5D3

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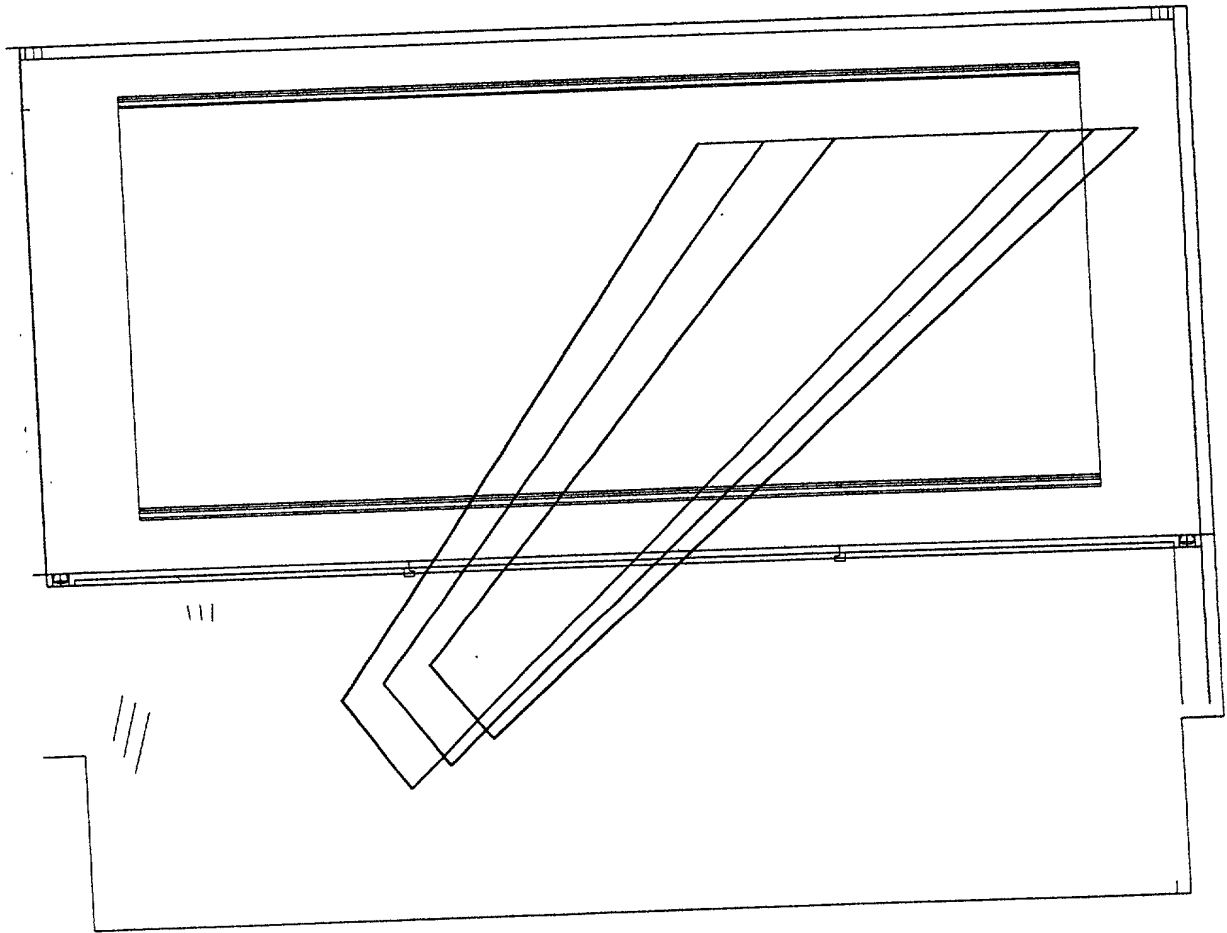


FIG. 5D4

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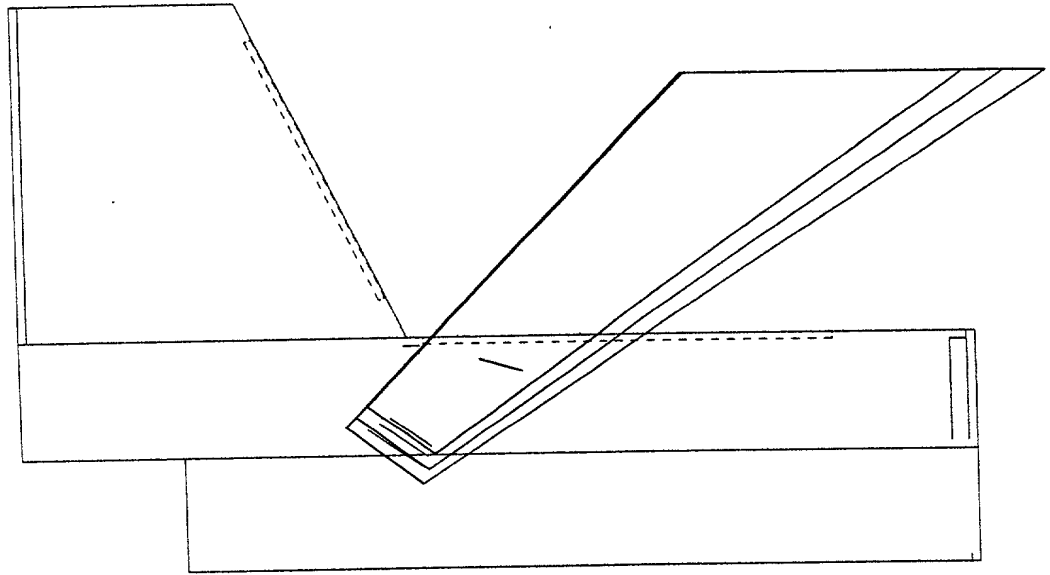


FIG. 5D5

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FIG. 5E1

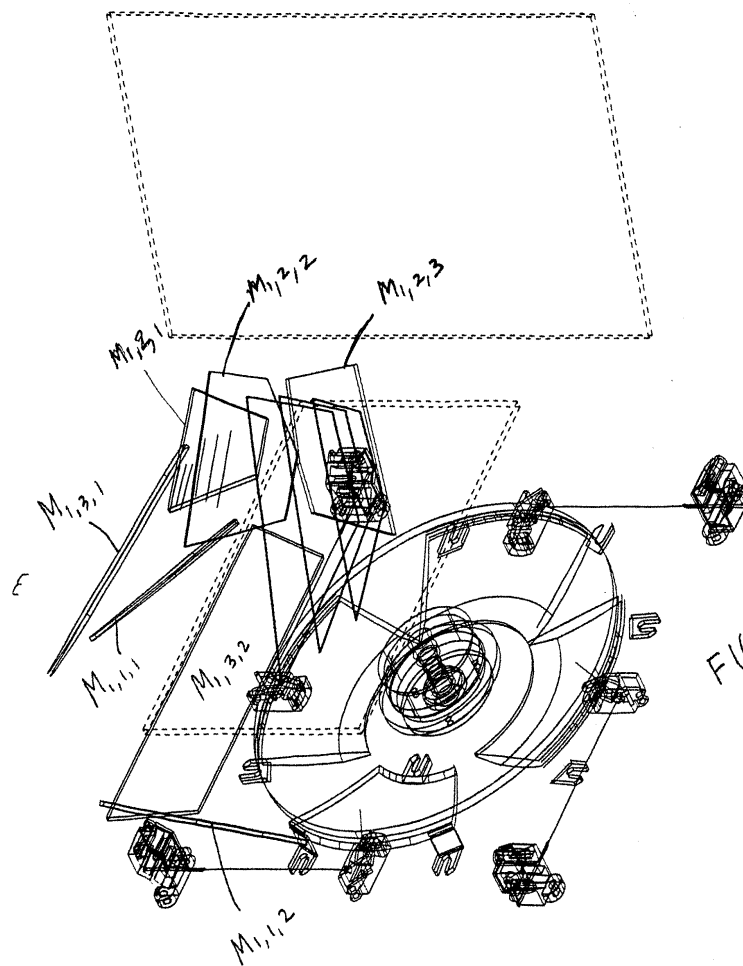


FIG. 5E1

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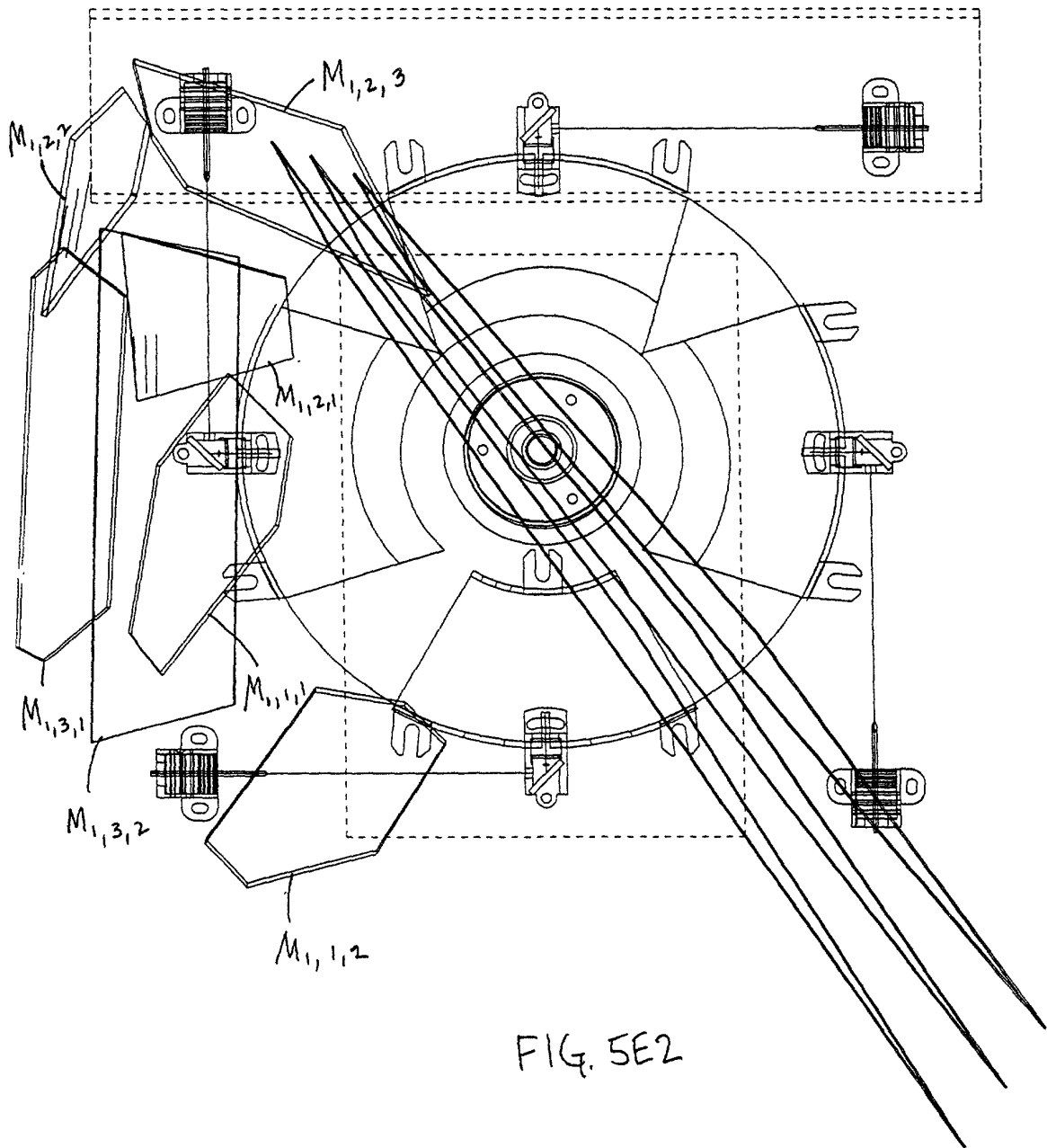


FIG. 5E2

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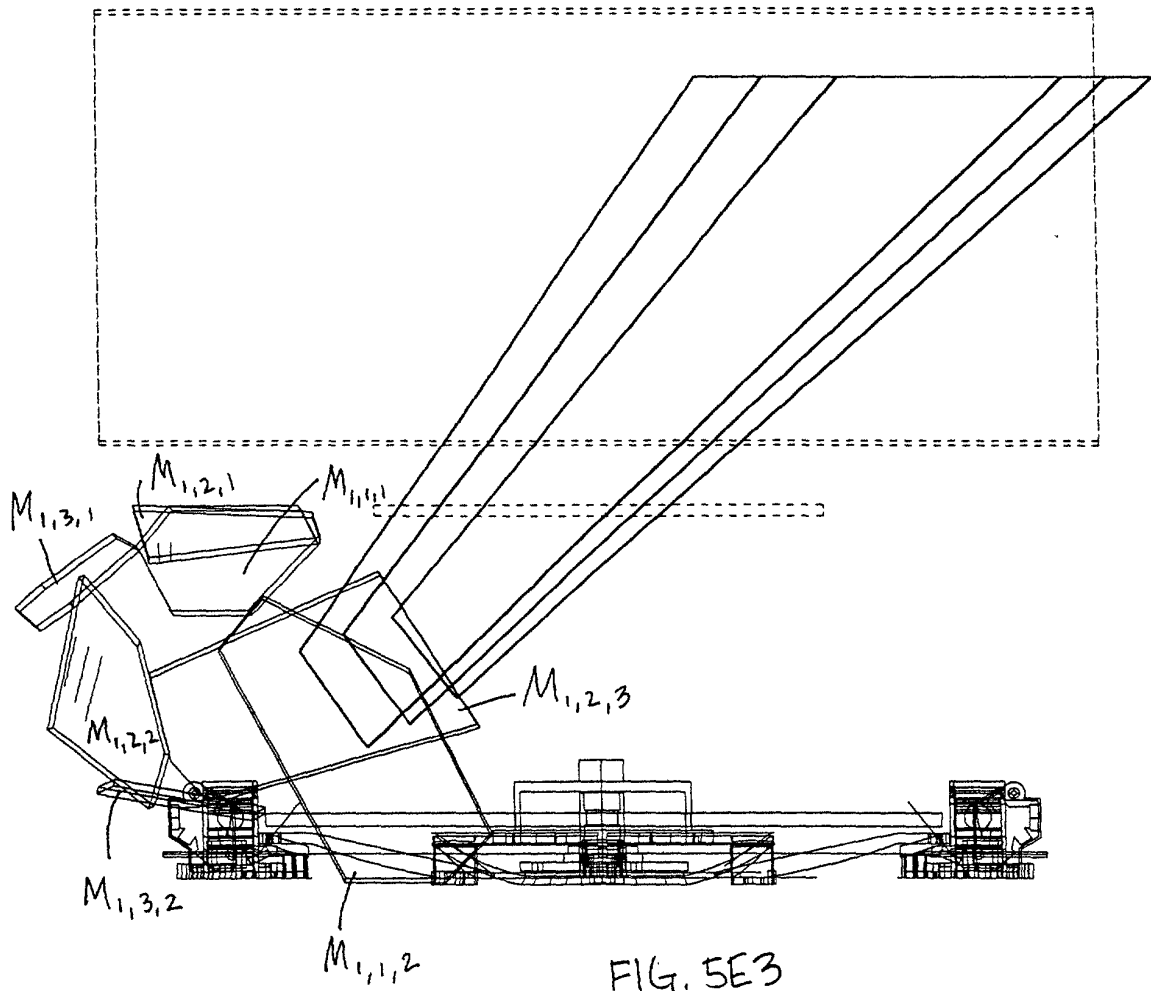


FIG. 5E3

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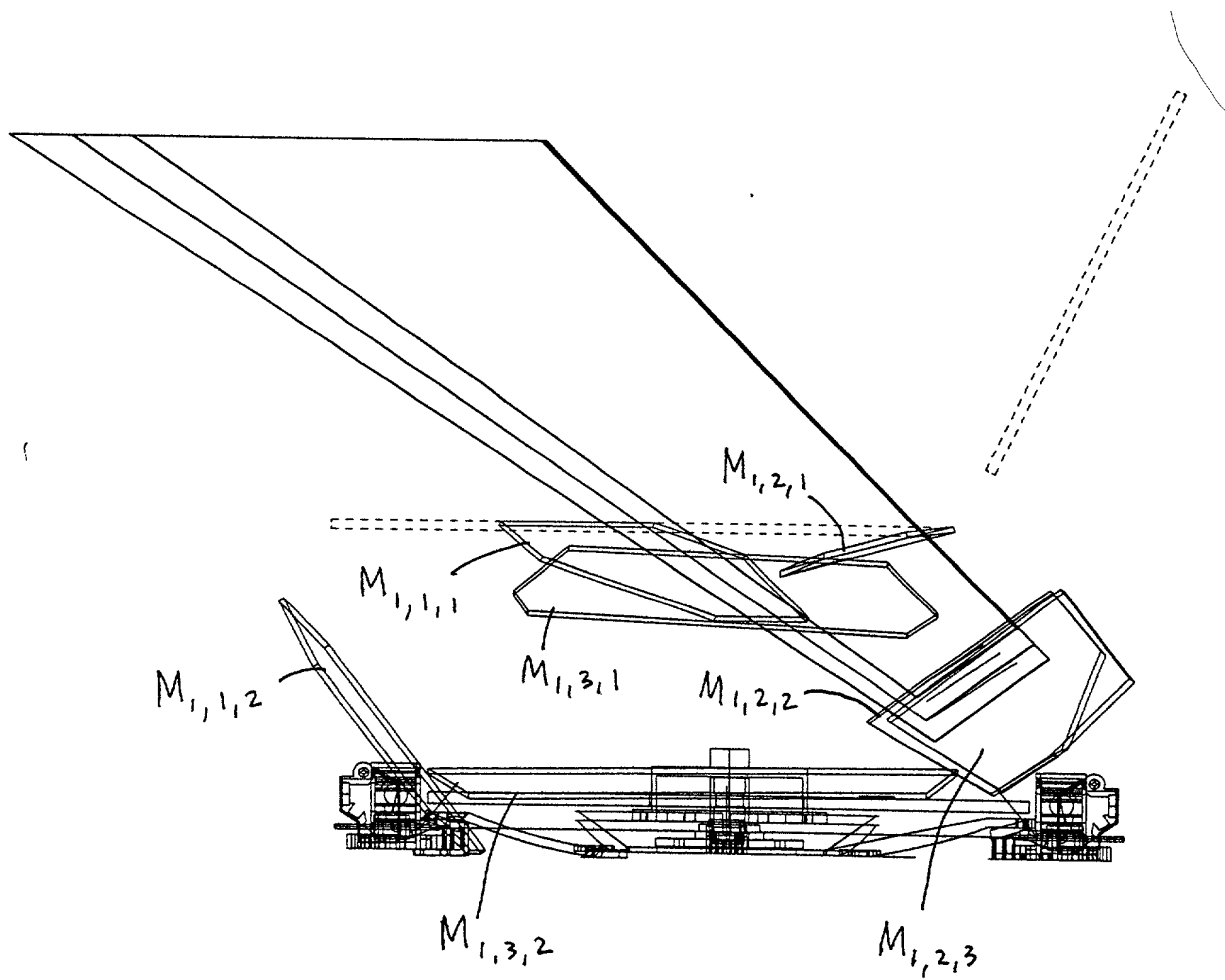


FIG. 5E4

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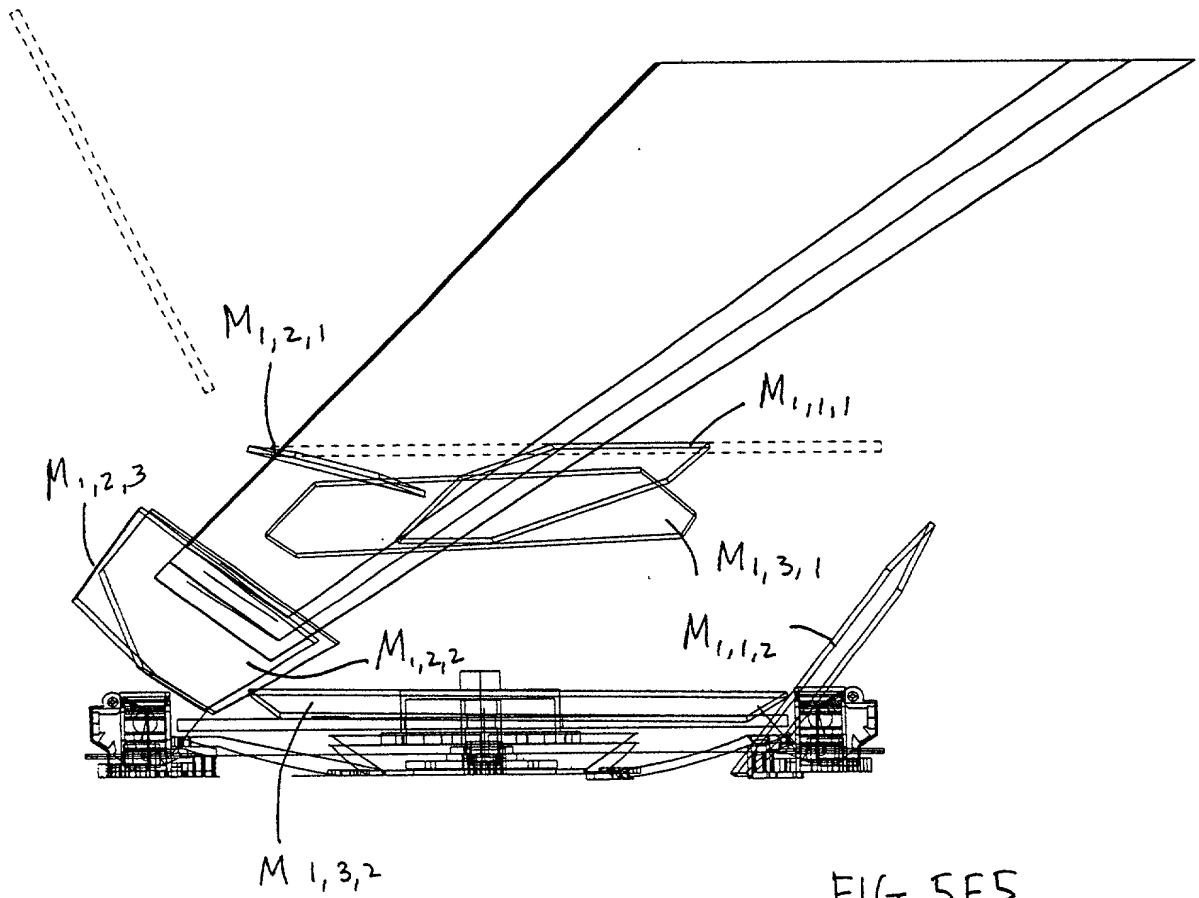


FIG. 5E5

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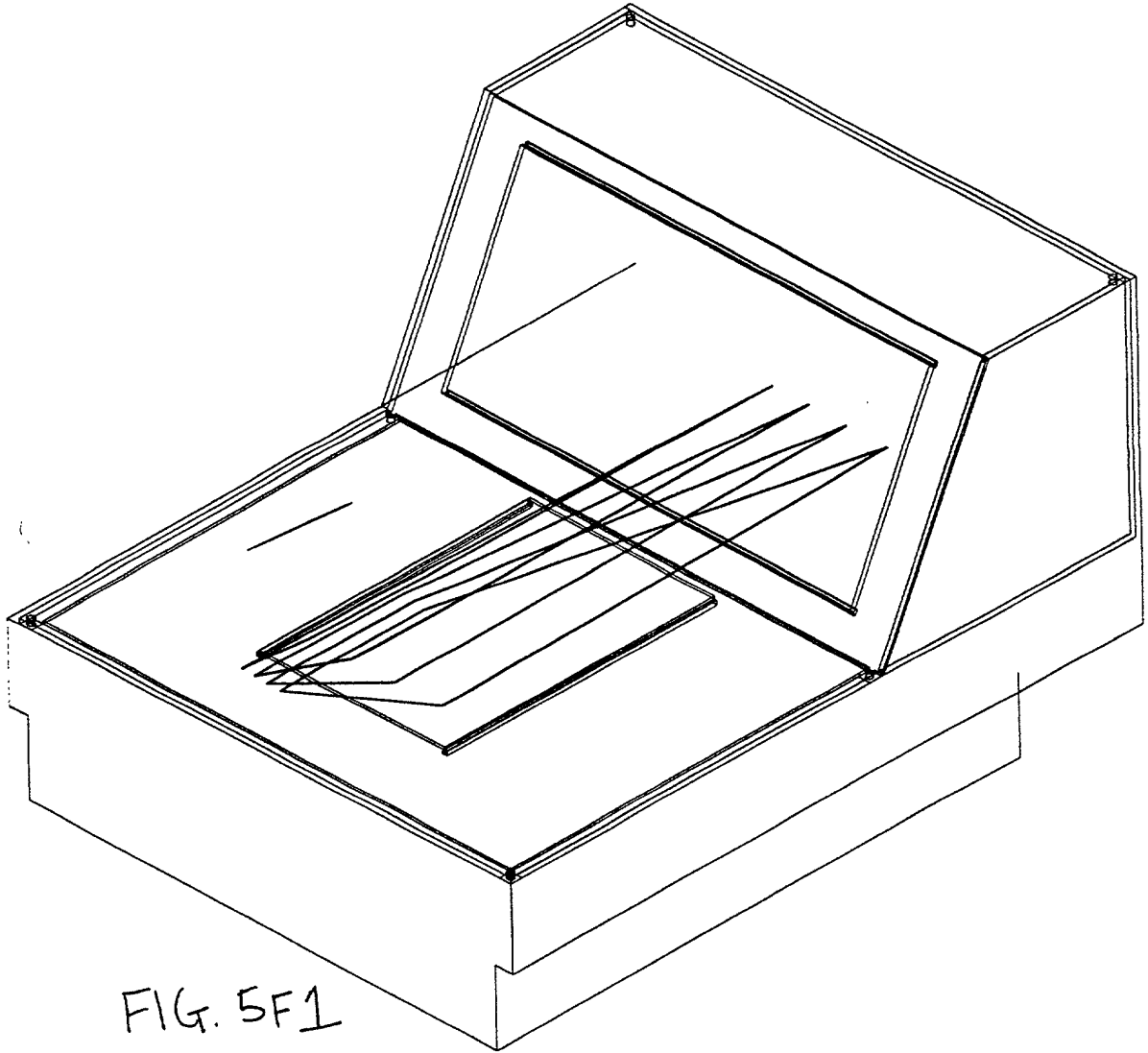


FIG. 5F1

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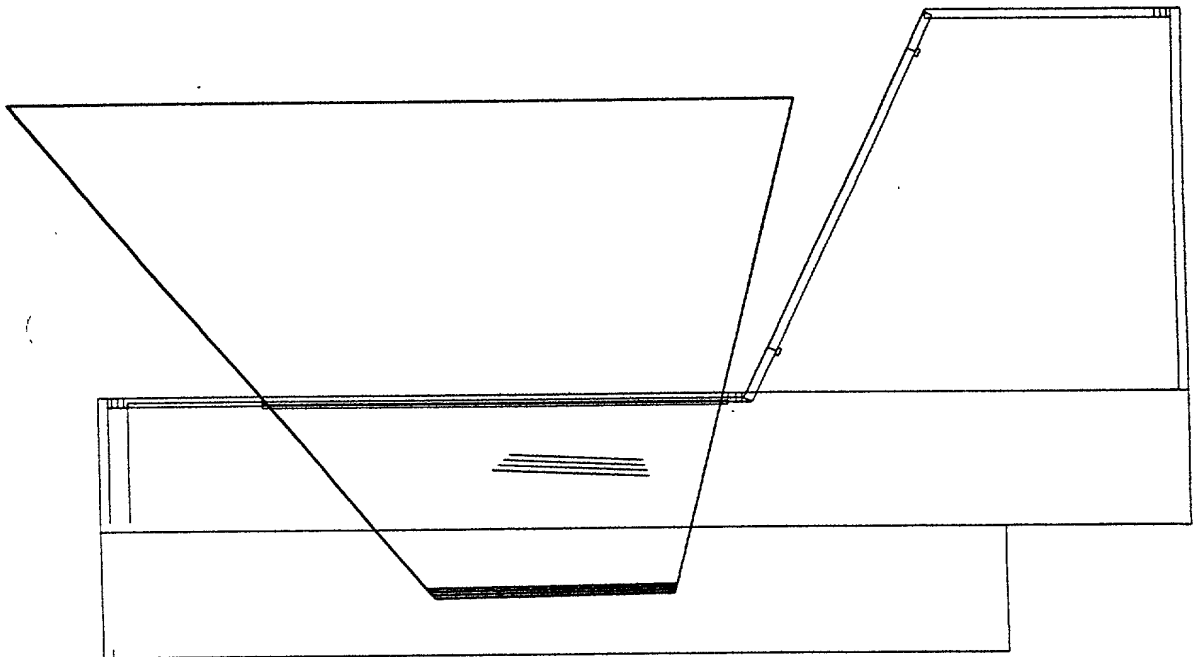


FIG. 5F2

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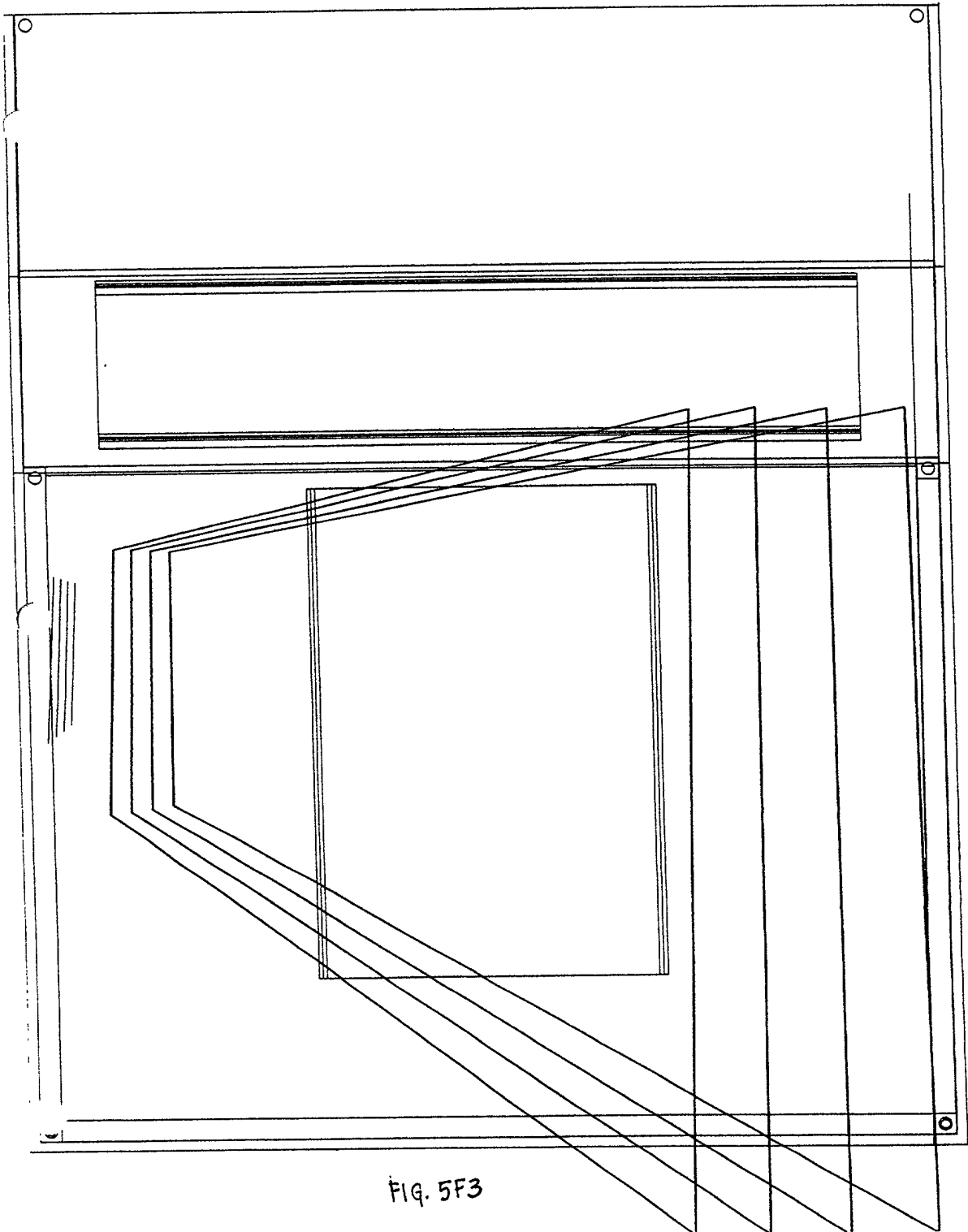


FIG. 5F3

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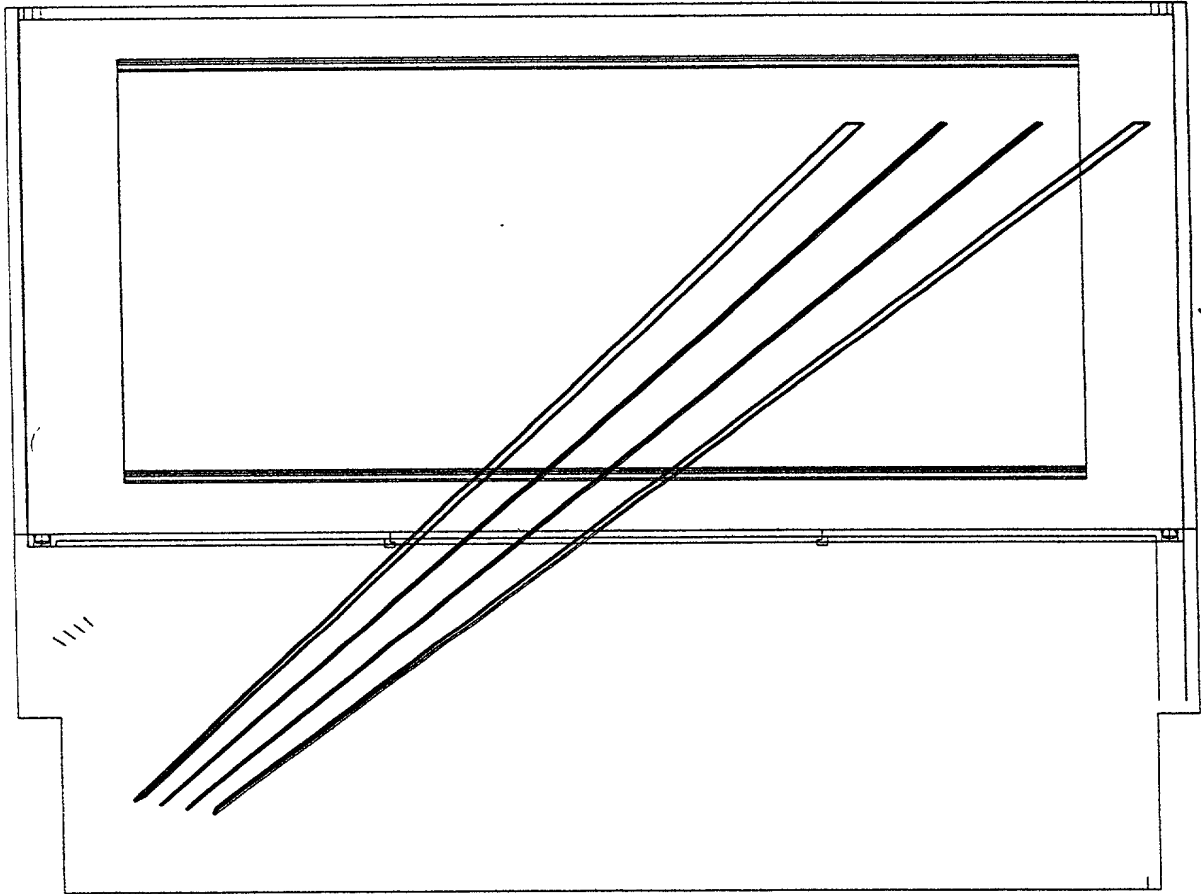


FIG. 5F4

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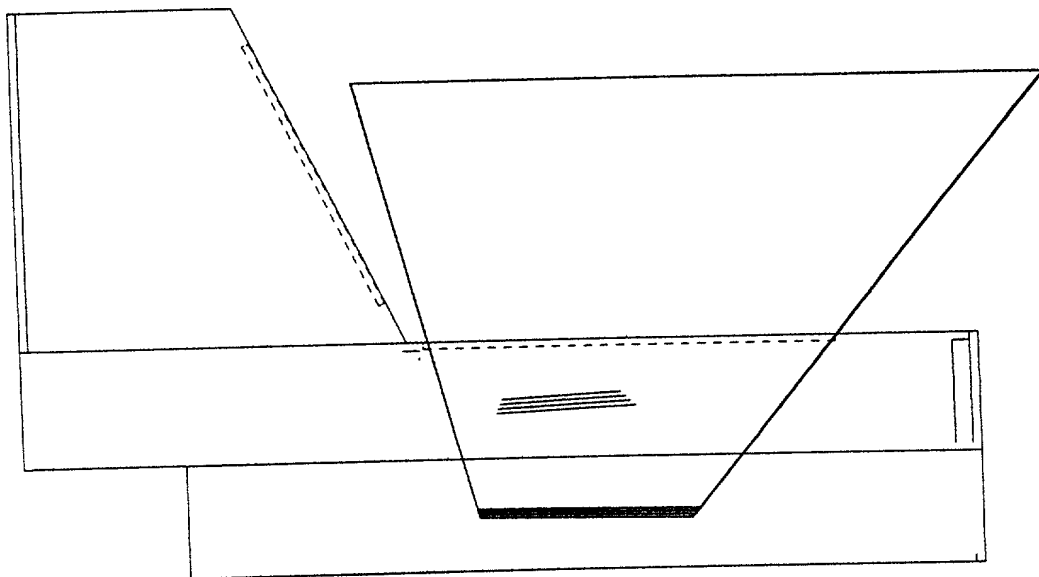


FIG. 5F5

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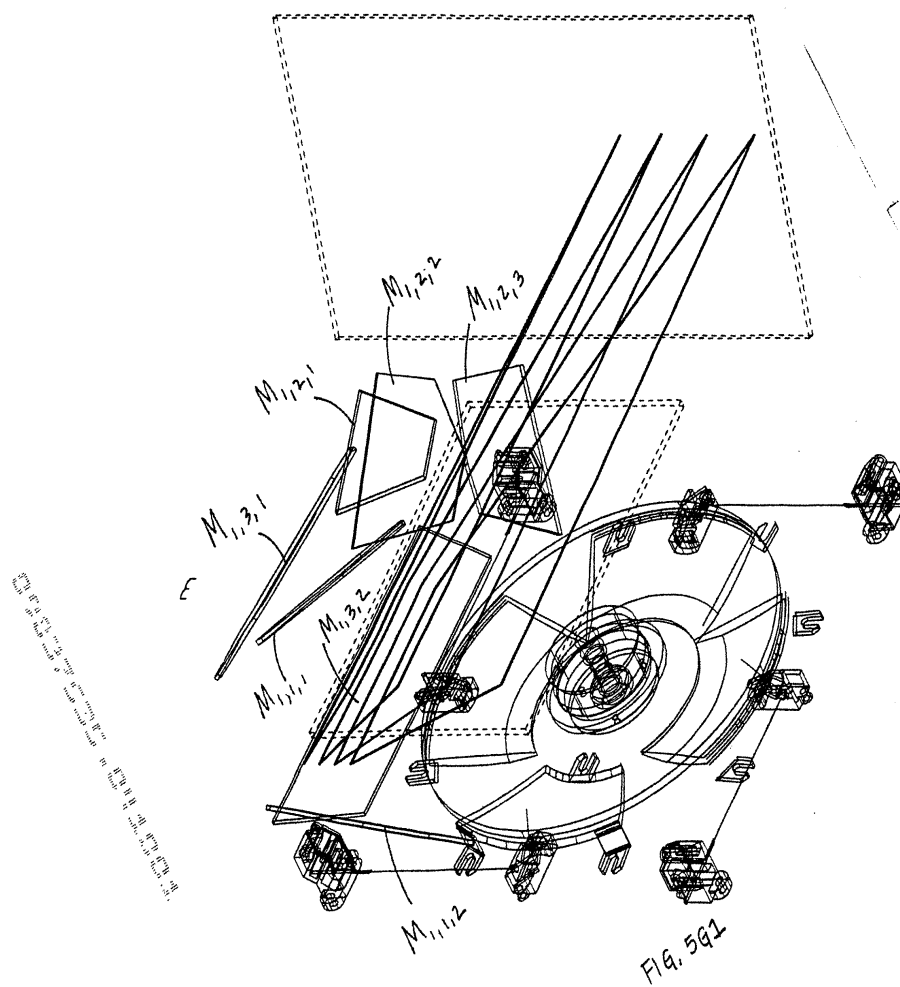


FIG. 591

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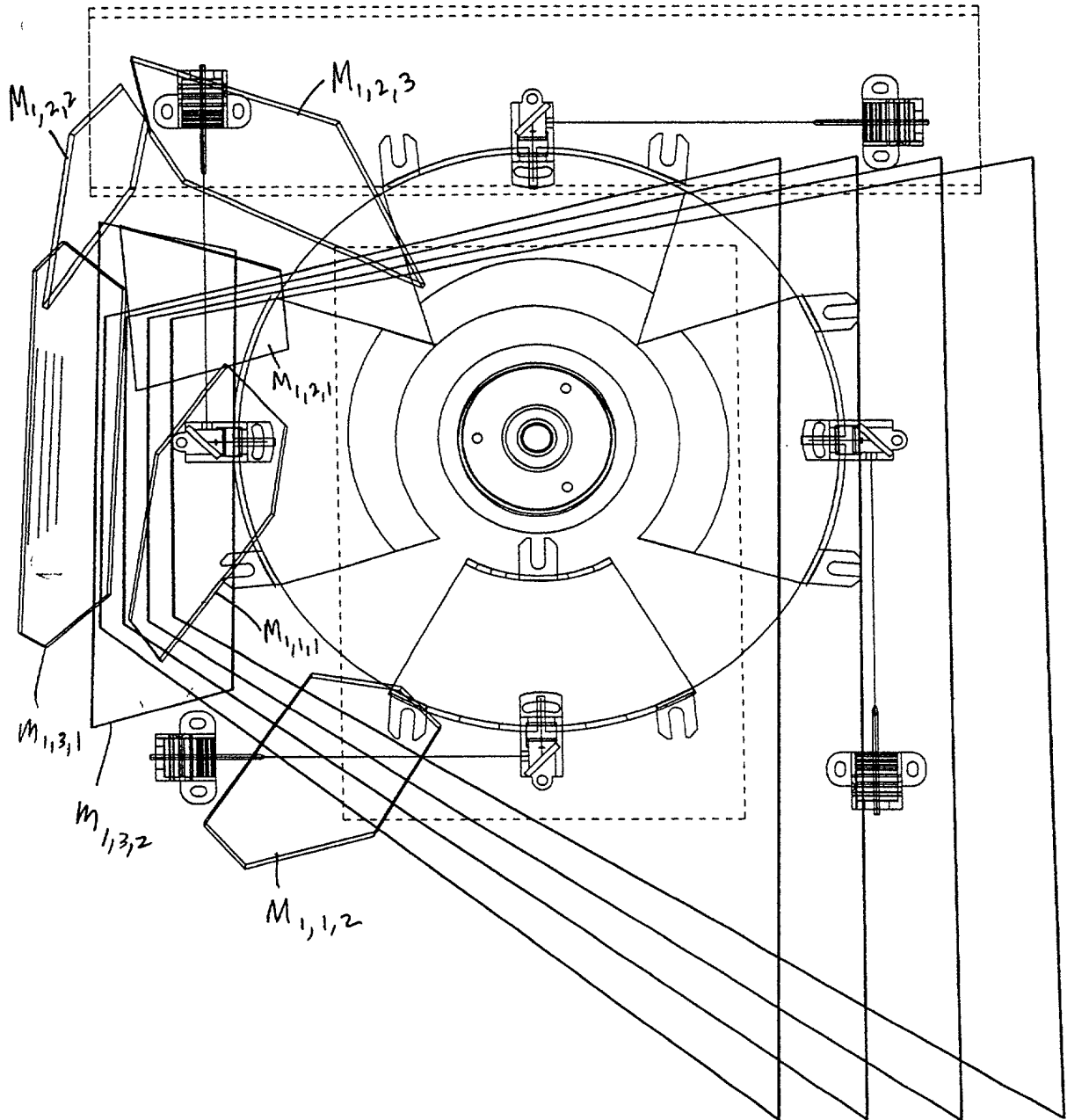


FIG. 592

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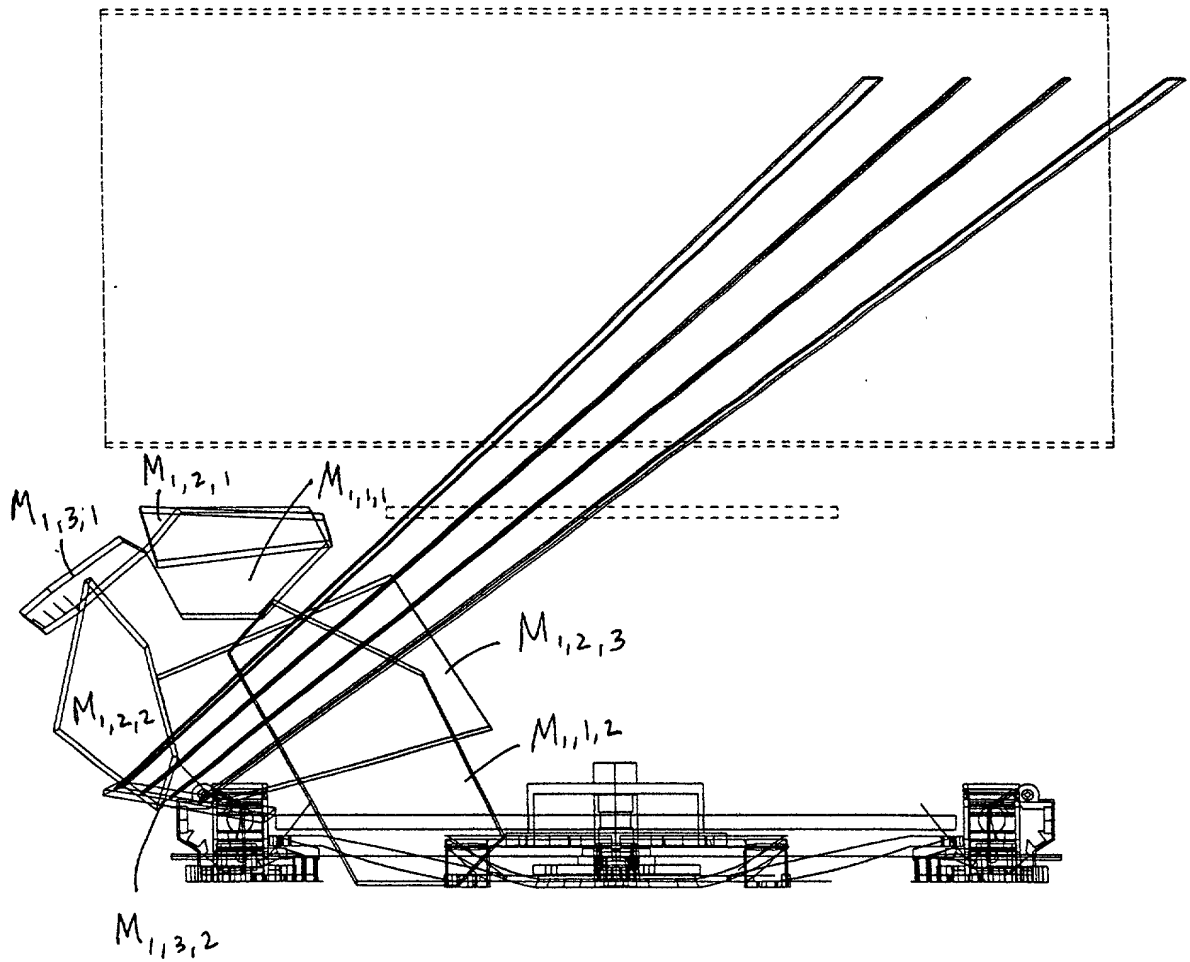


FIG 5G3

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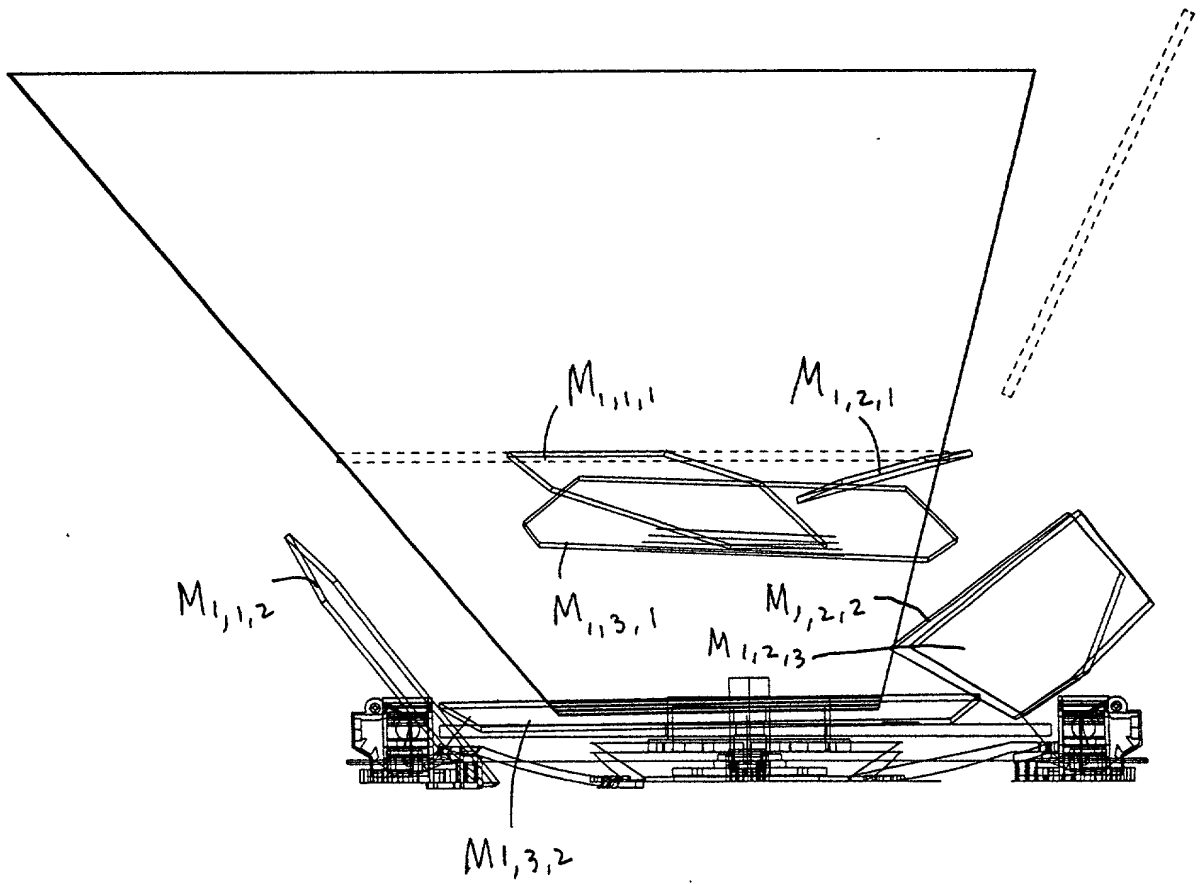


FIG. 5G4

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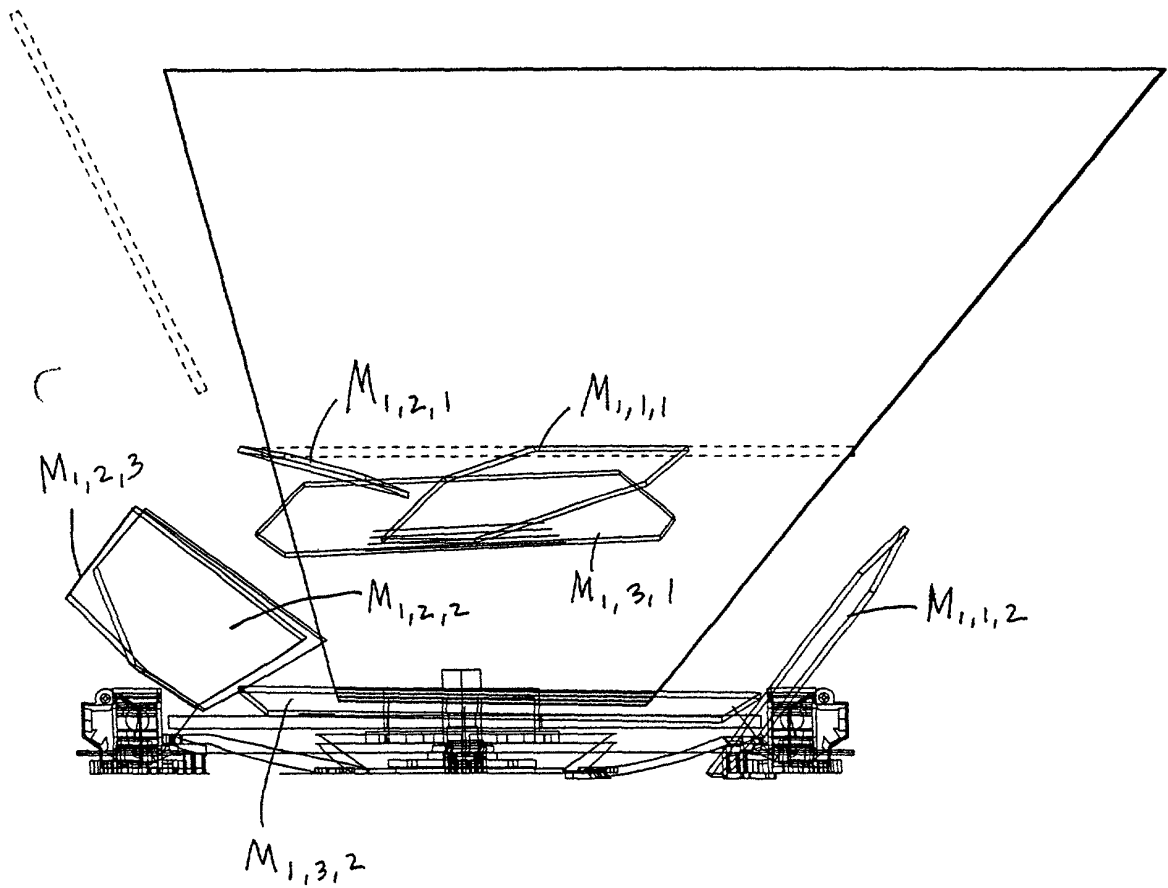
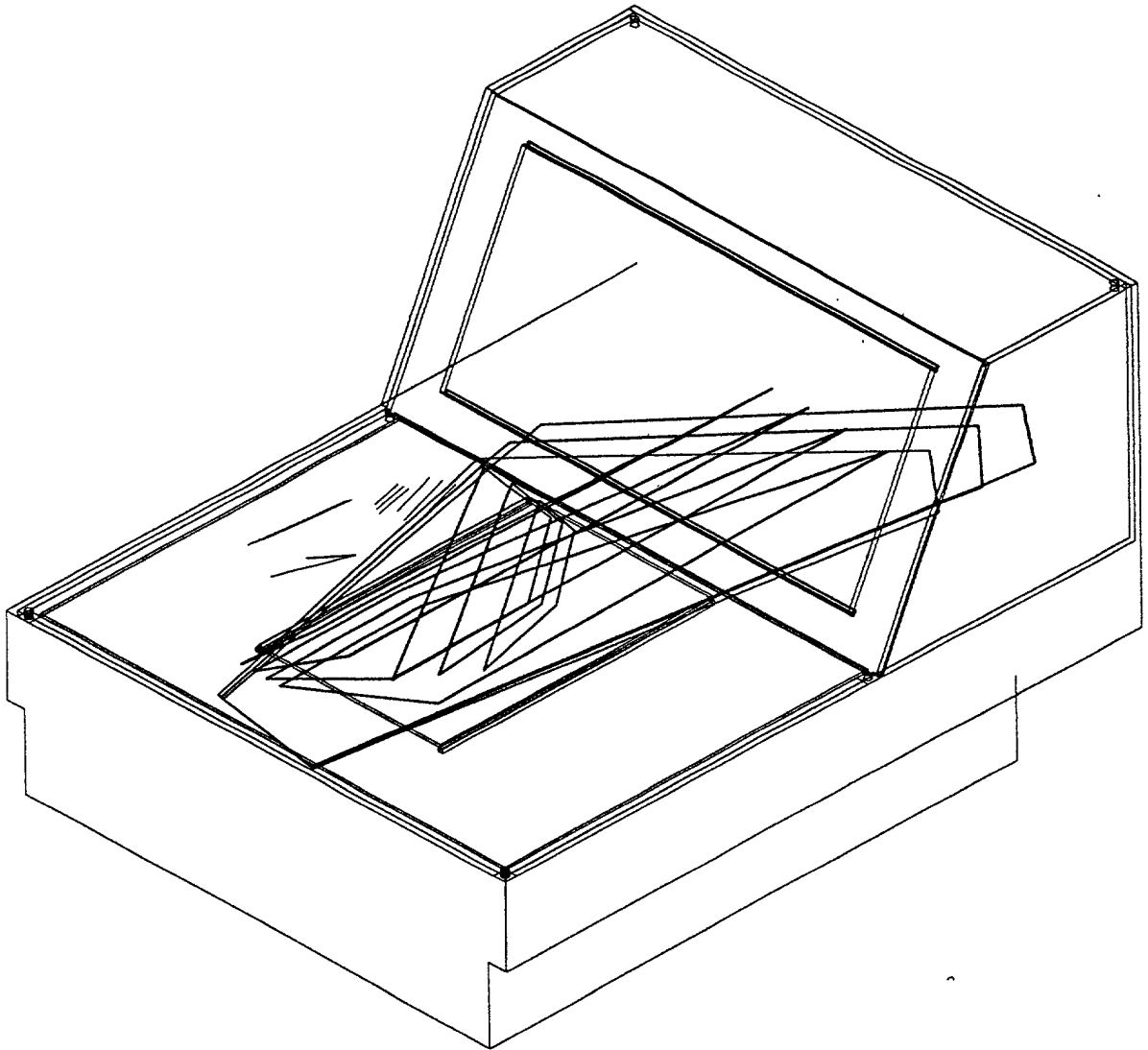


FIG. 565

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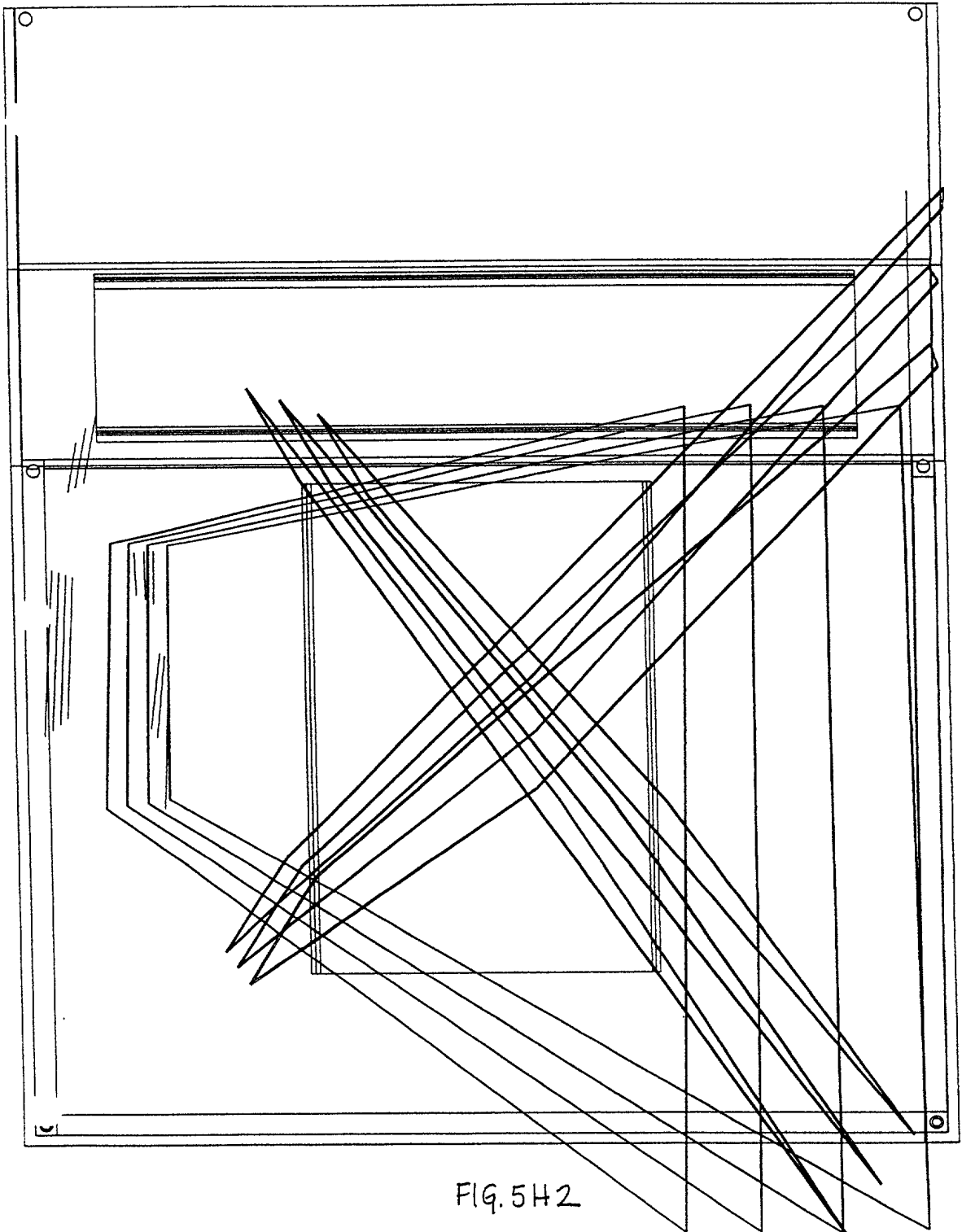


FIG. 5H2

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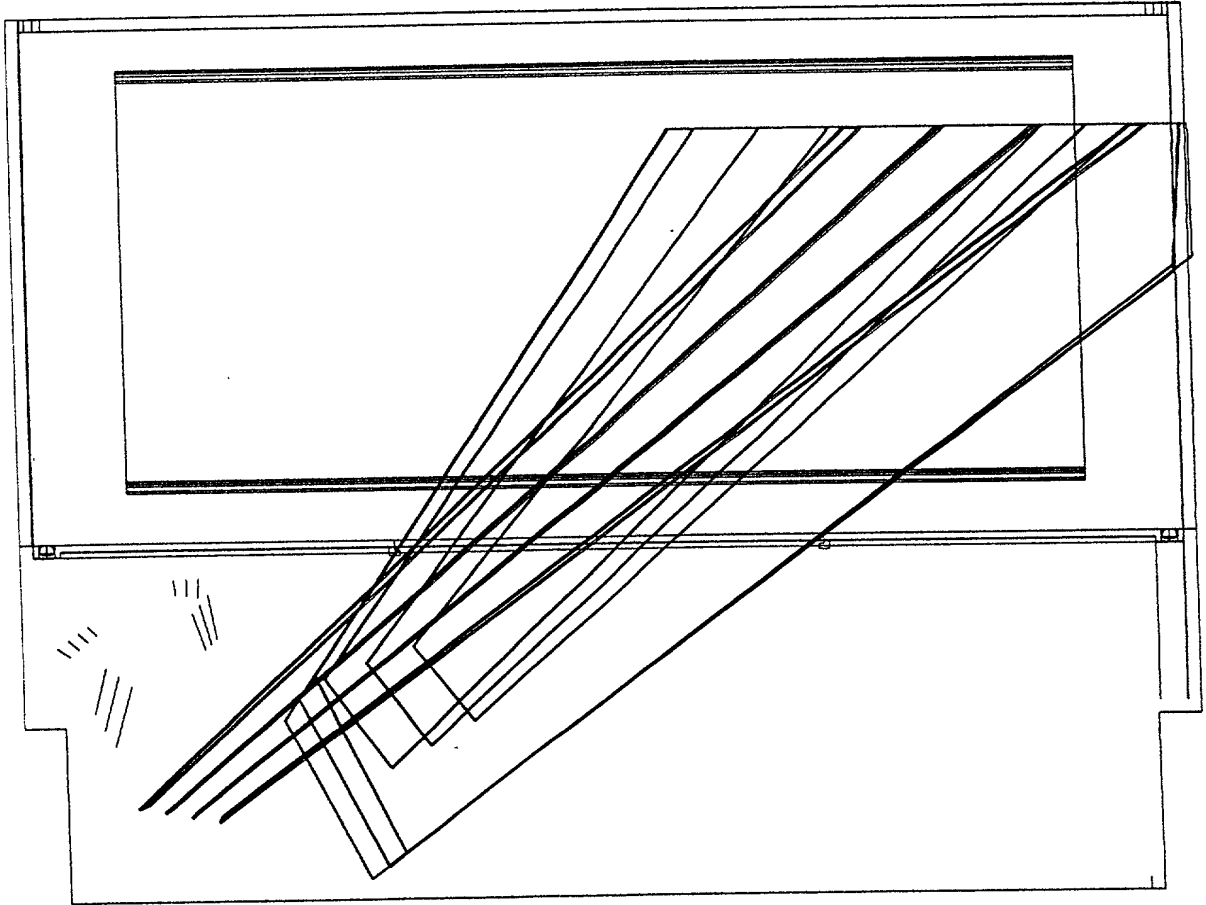


FIG. 543

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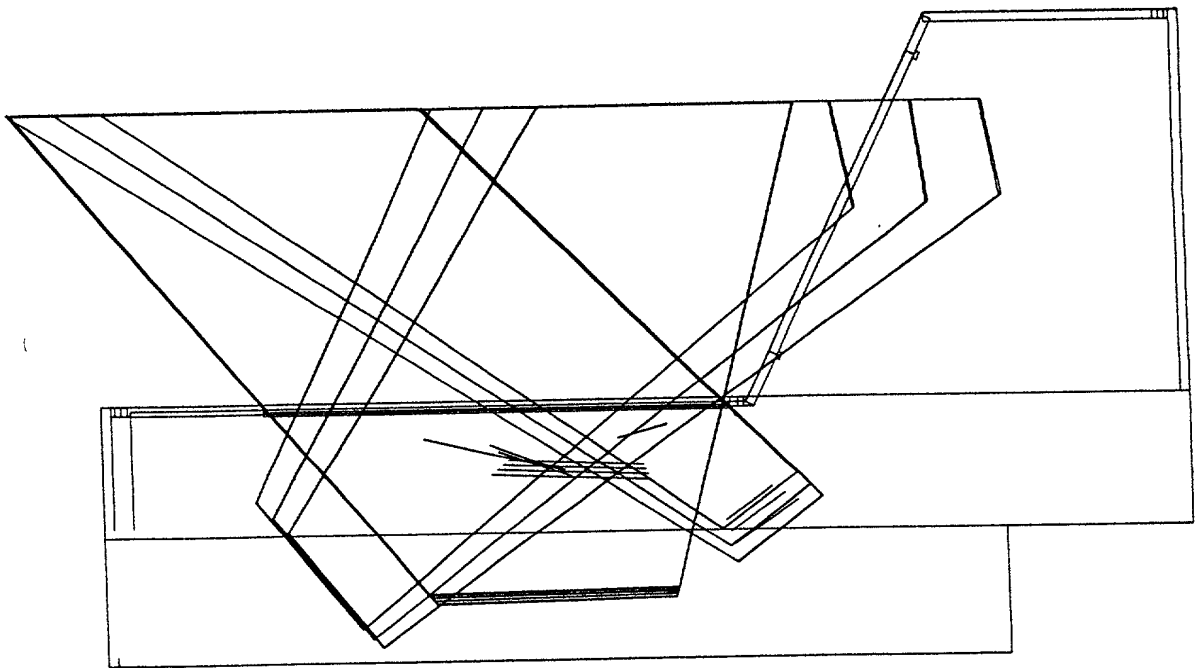


FIG. 5H4

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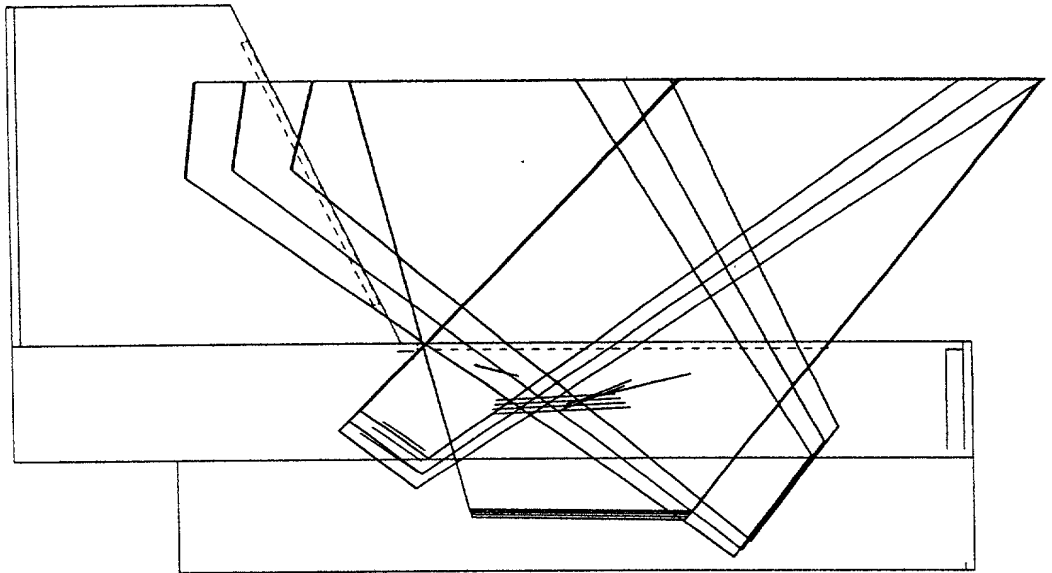


FIG. 545

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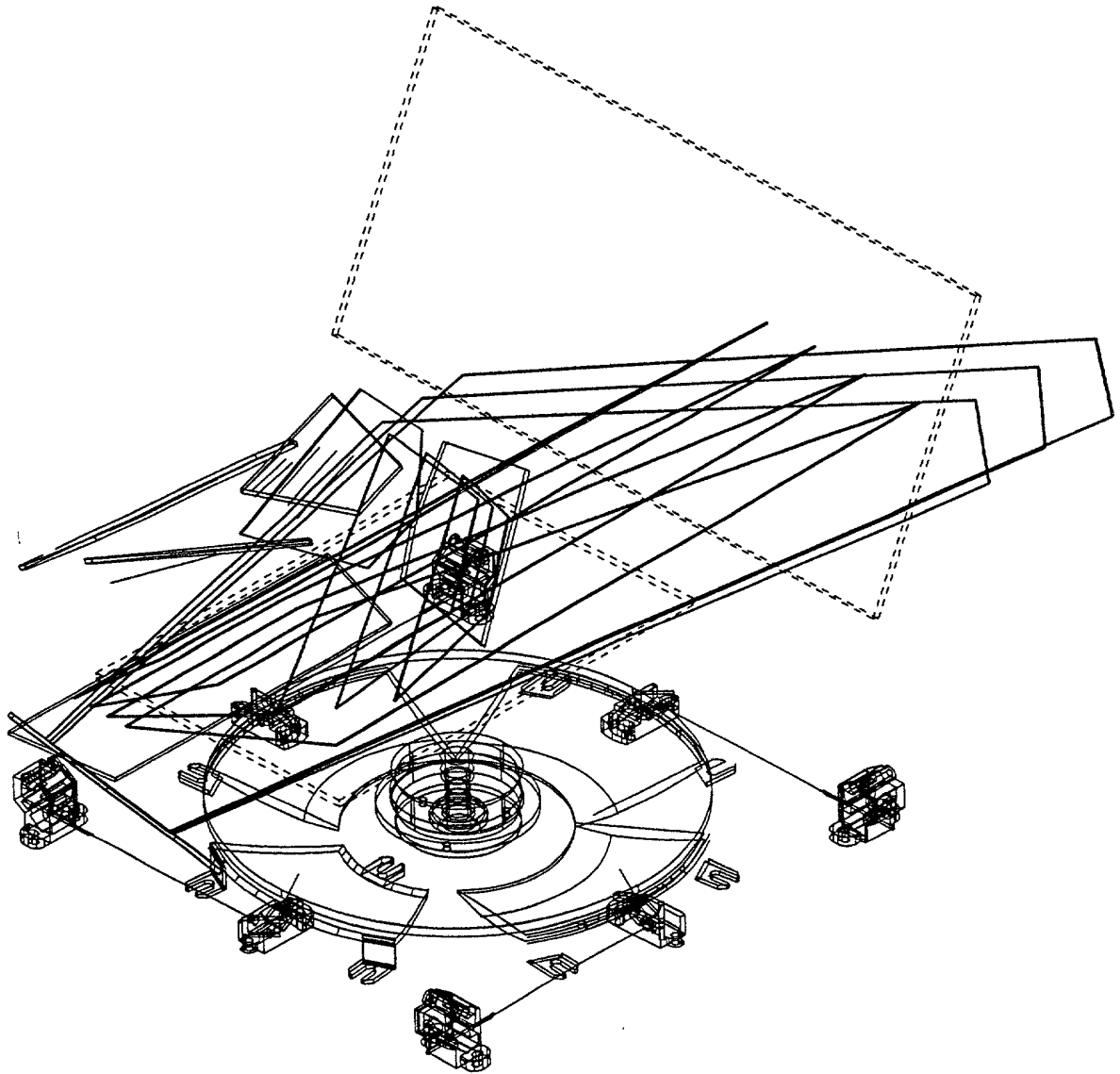


FIG. 5H6

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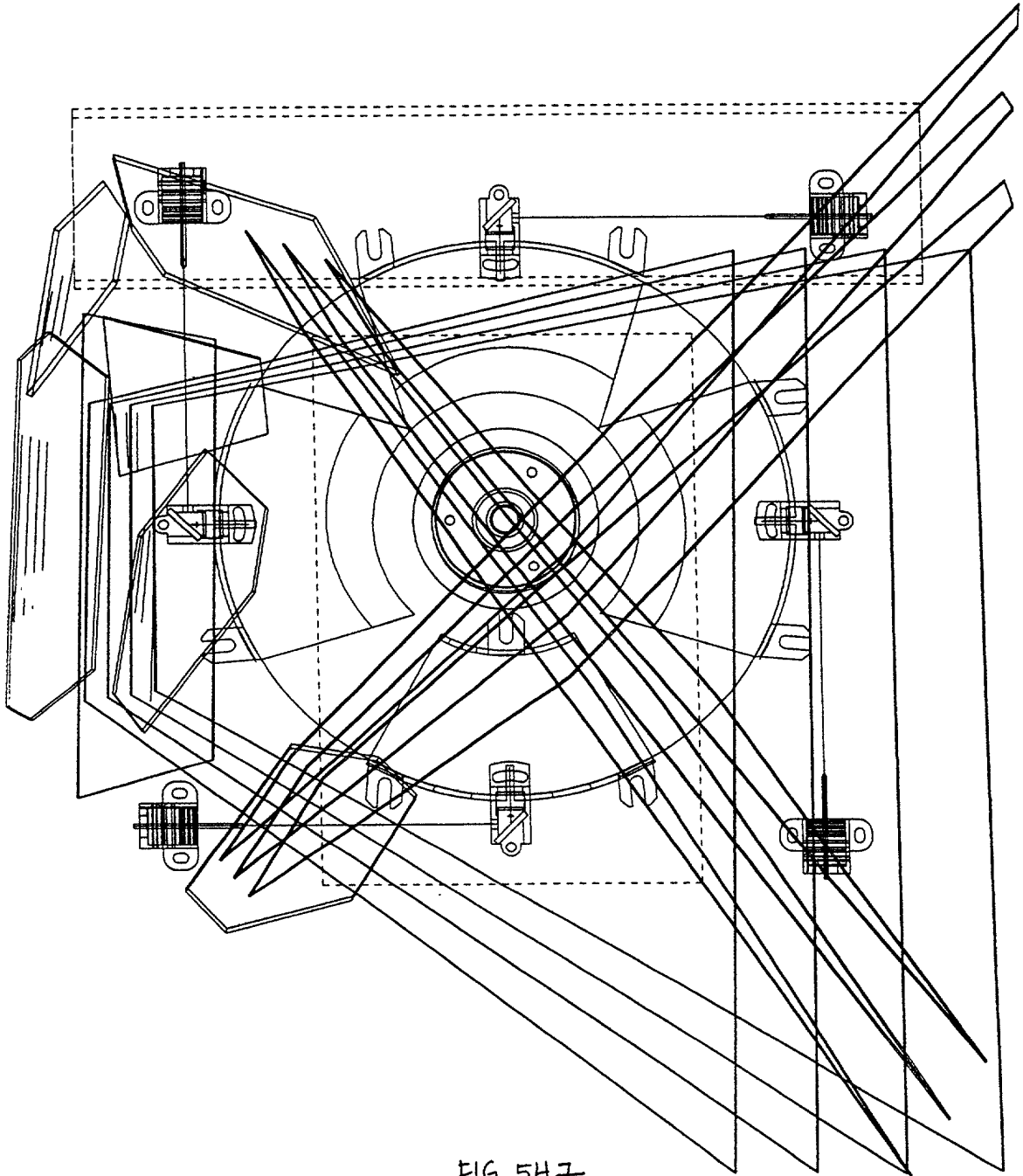


FIG. 5H7

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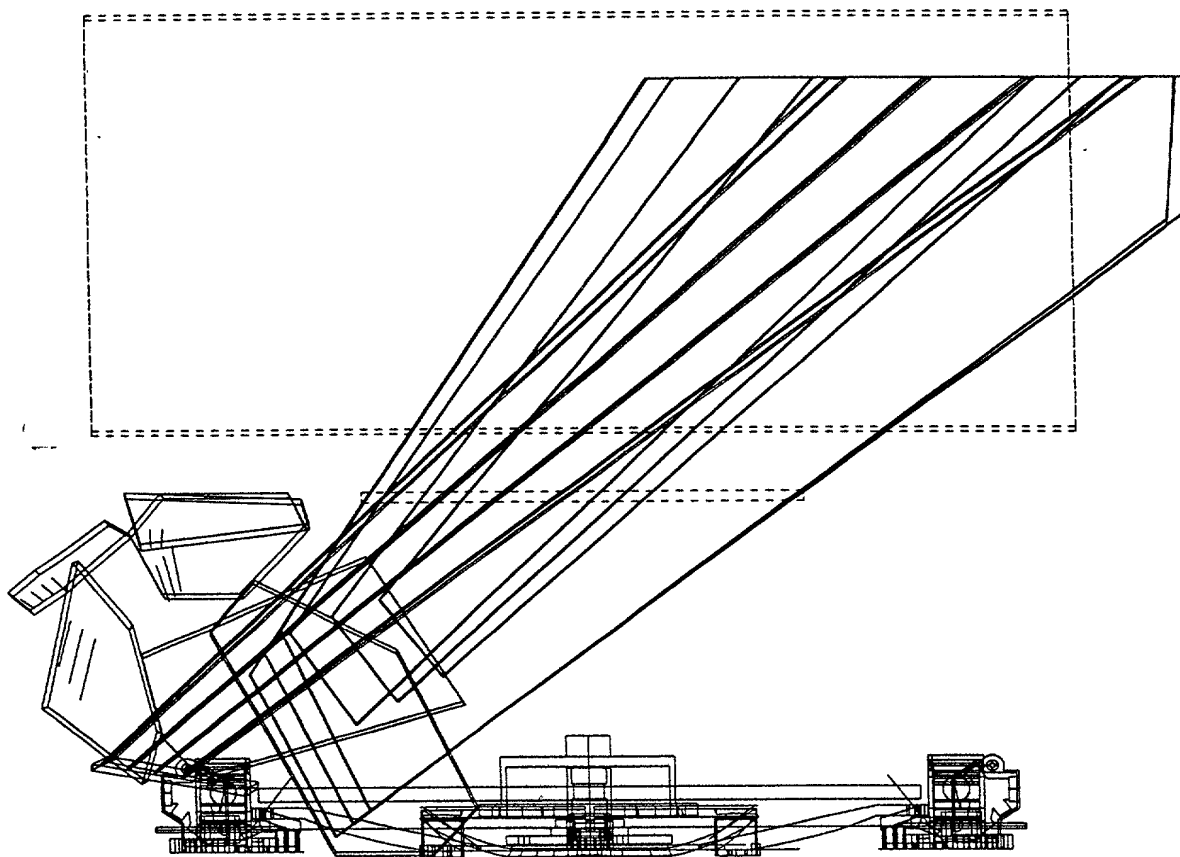


FIG. 5H8

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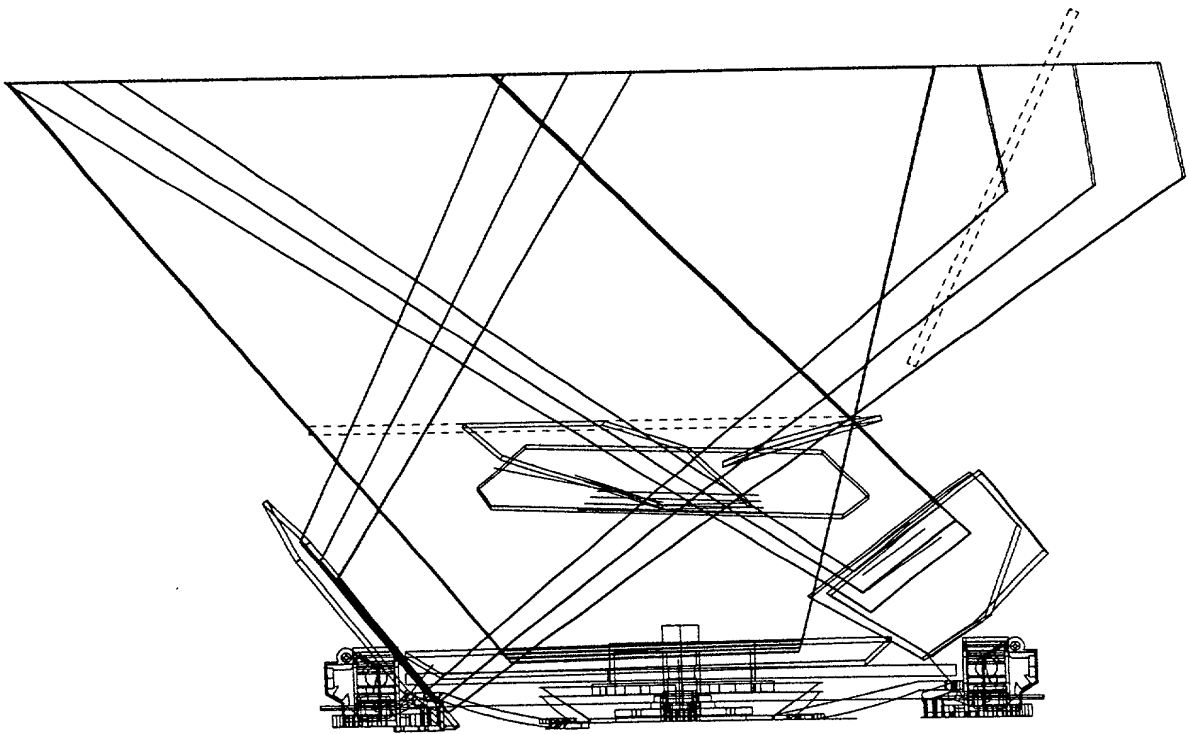


FIG. 5H9

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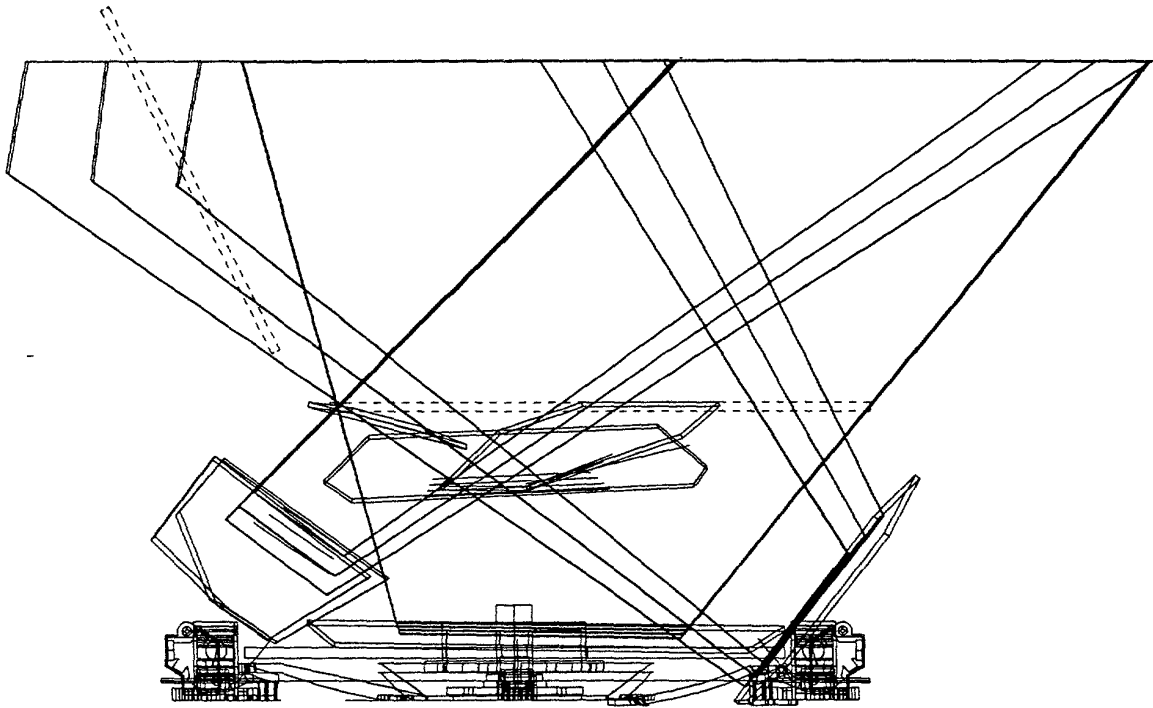


FIG. 5H10

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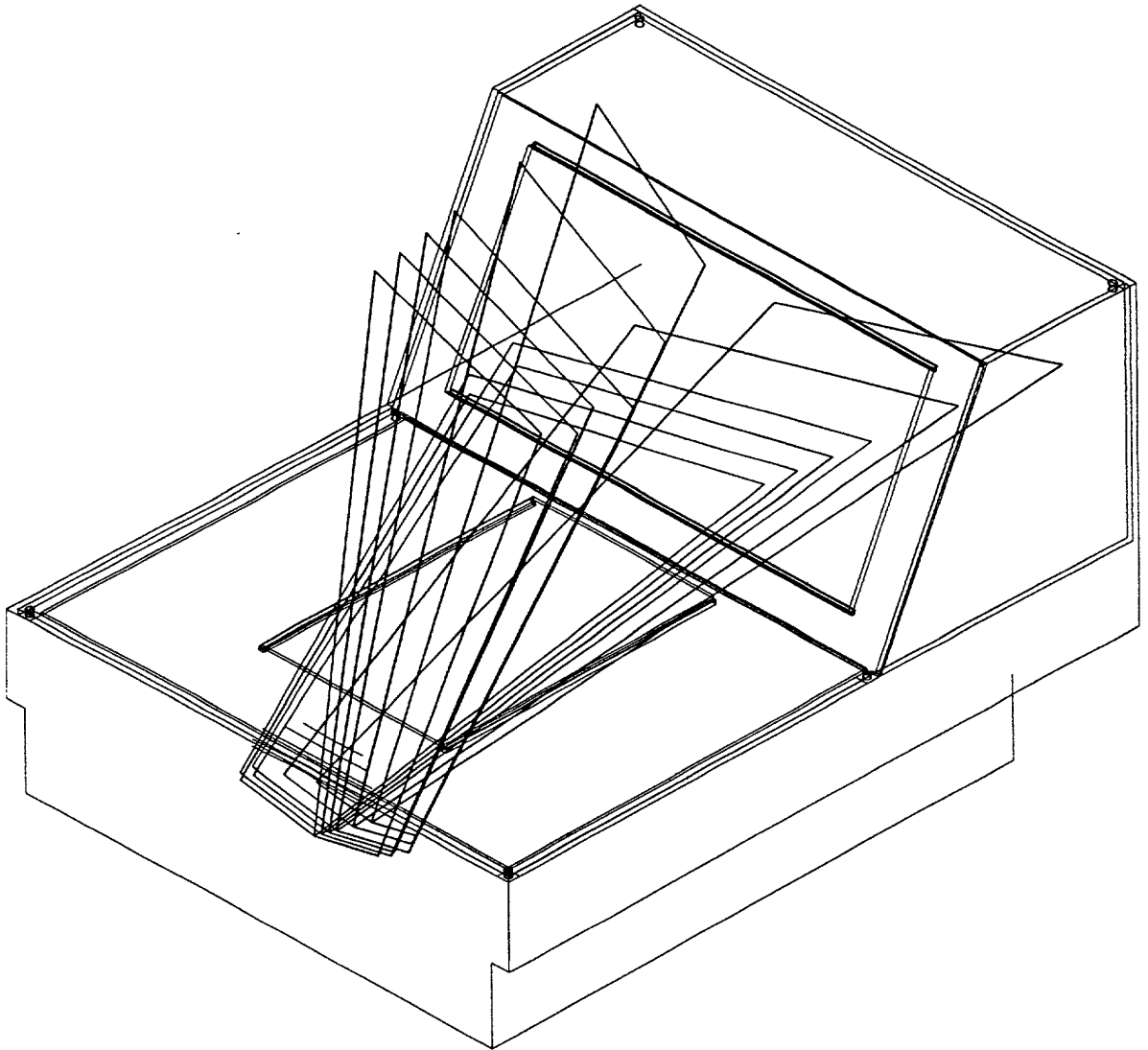


FIG. 5I1

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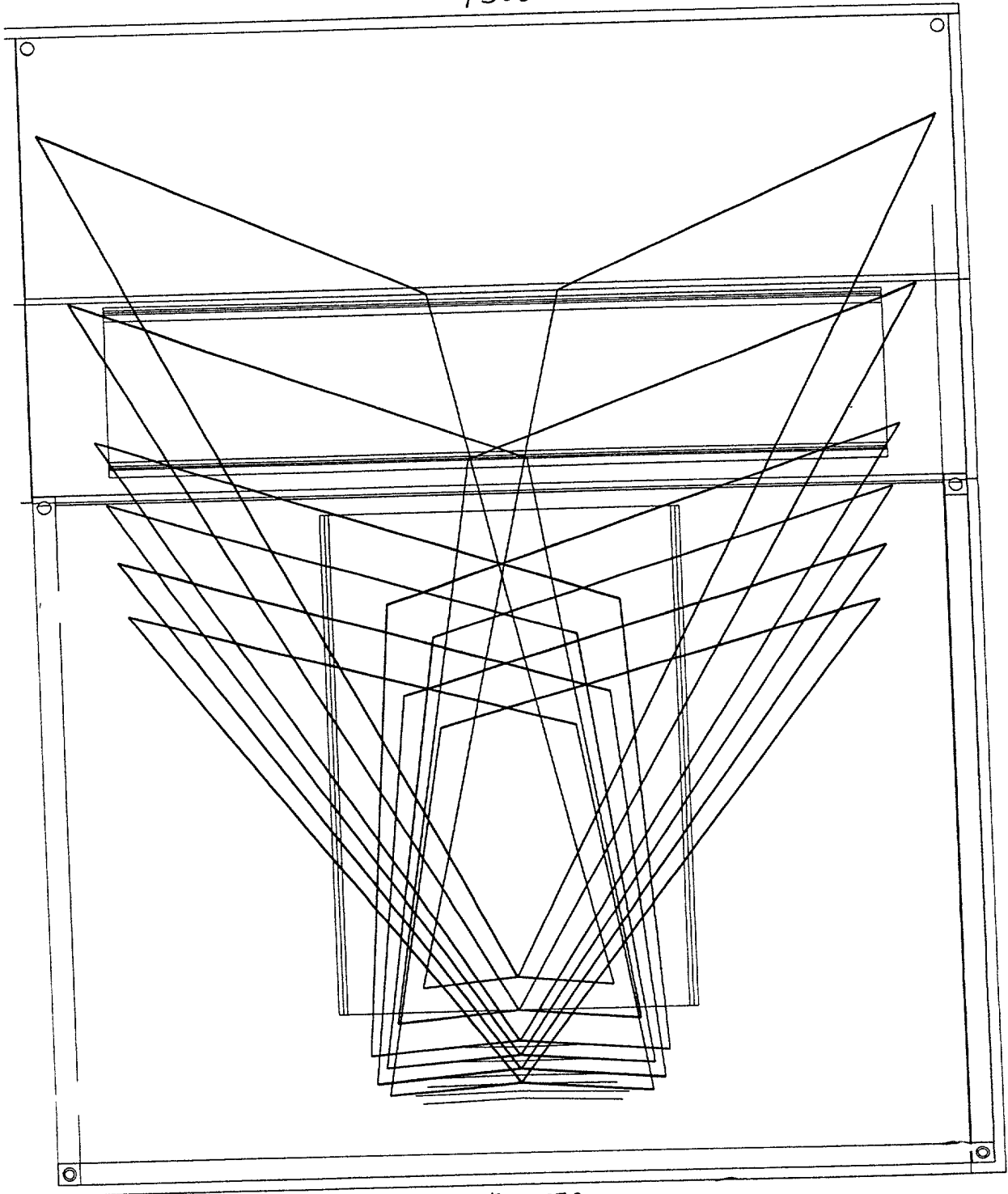


FIG. 512

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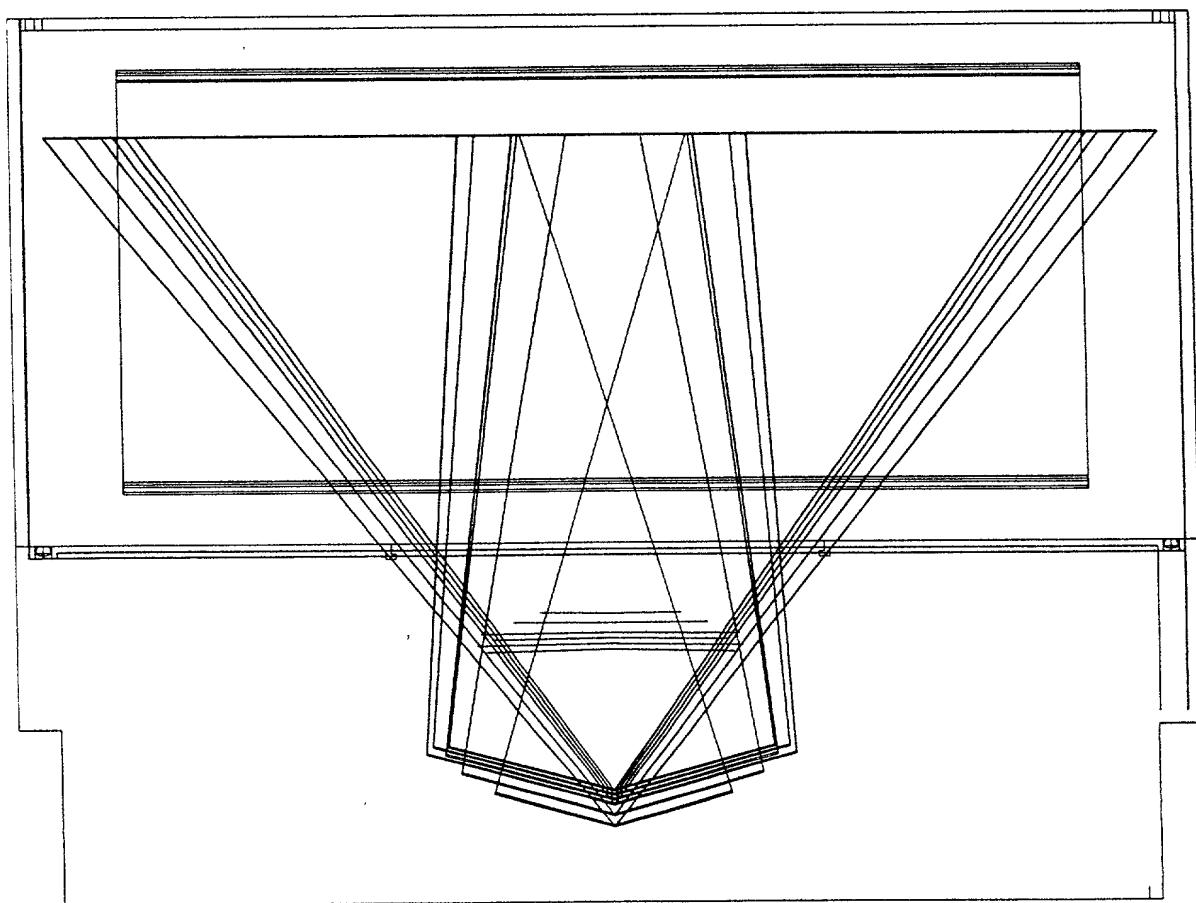


FIG. 5I3

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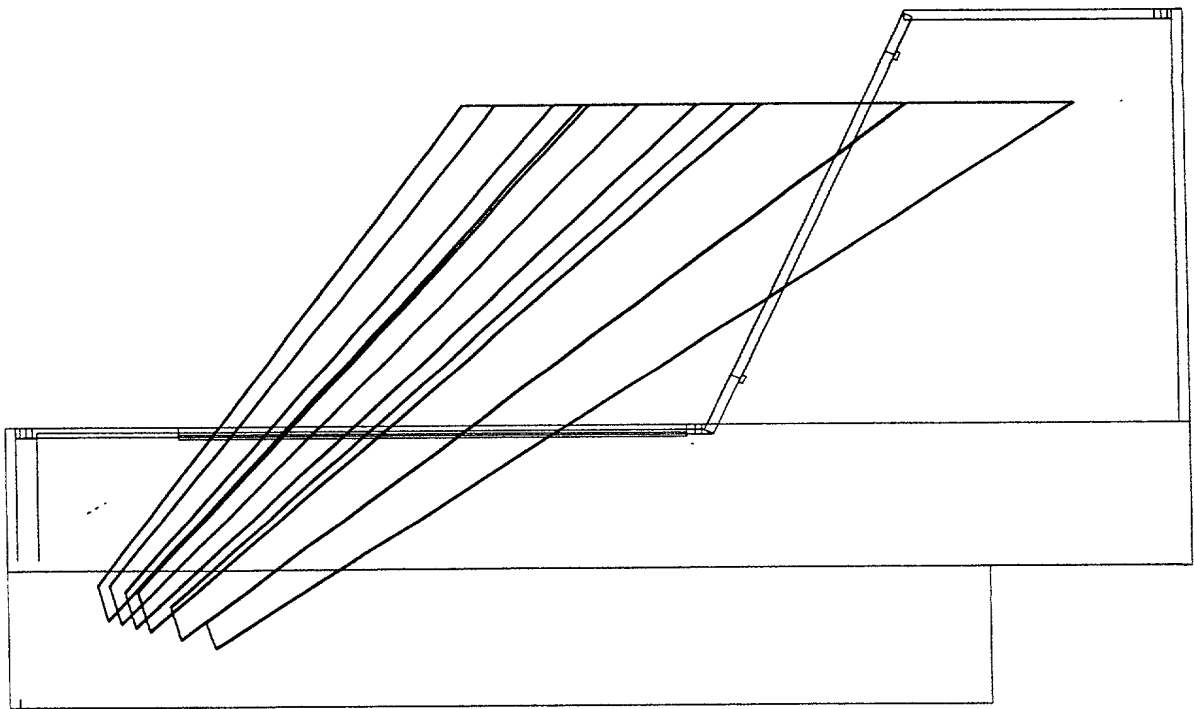


FIG. 5I4

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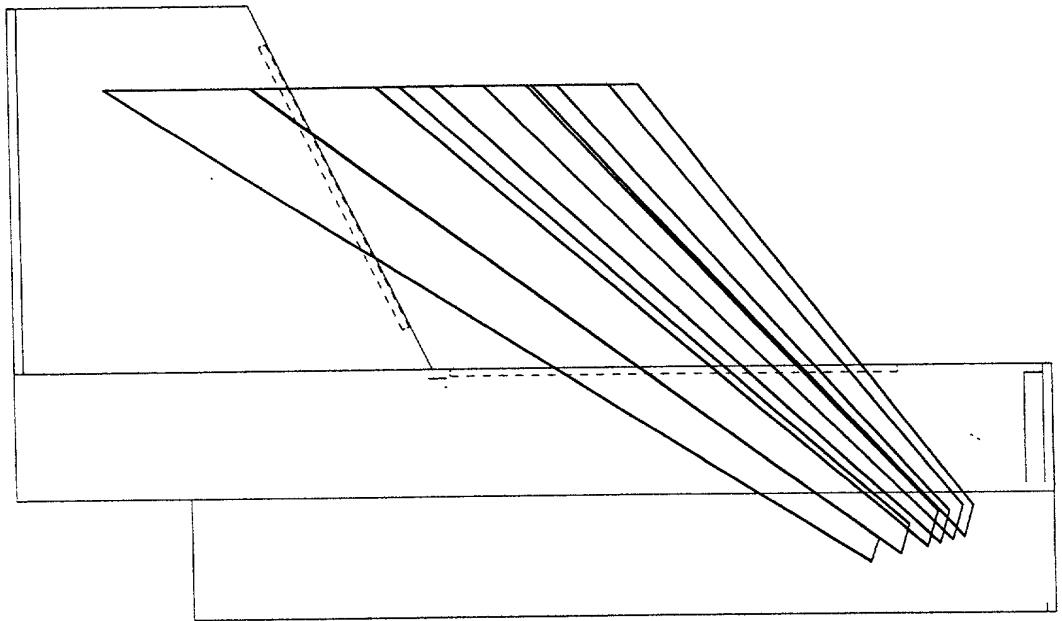


FIG. 5I5

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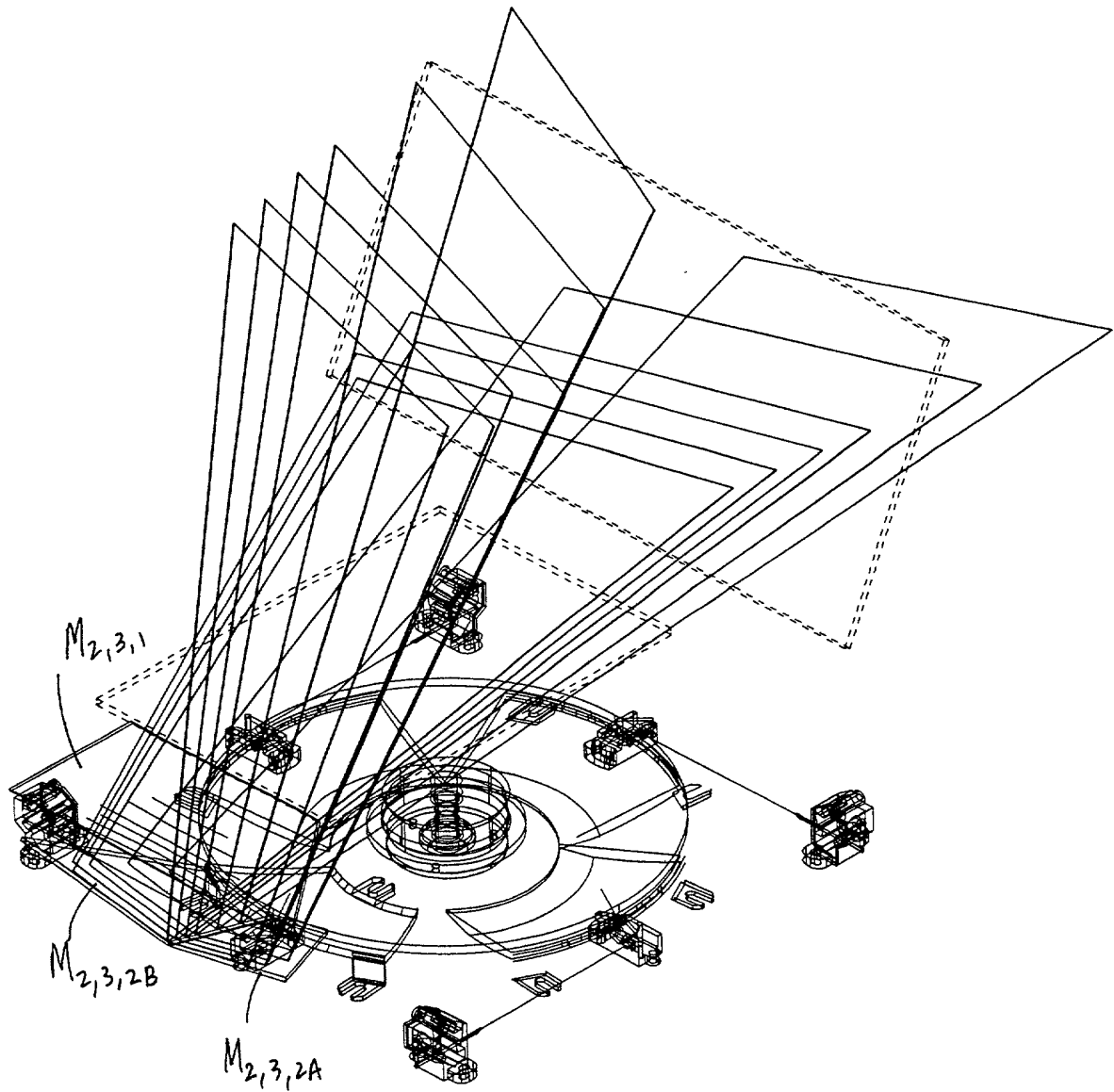


FIG 5J1

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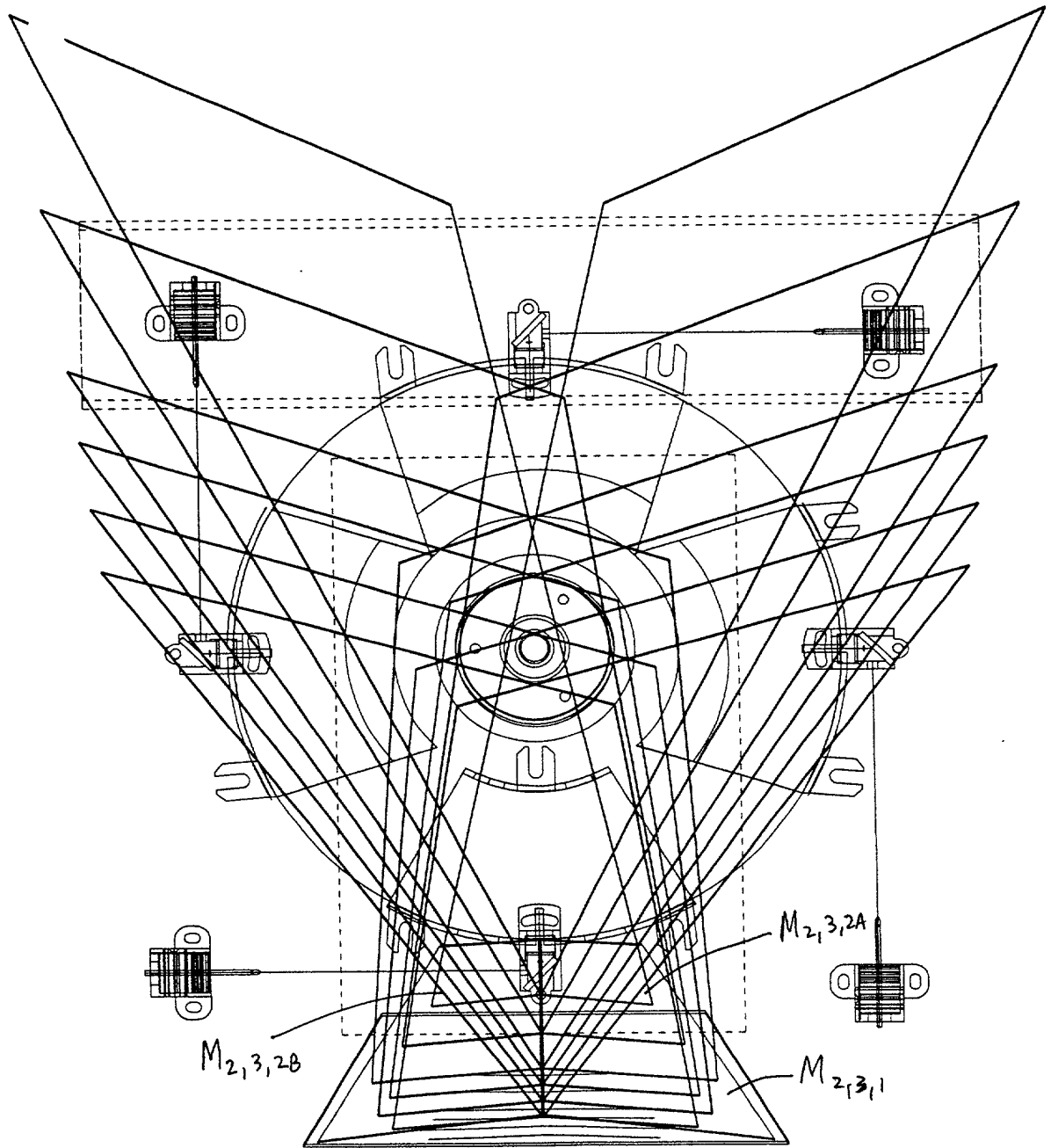


FIG. 5J2

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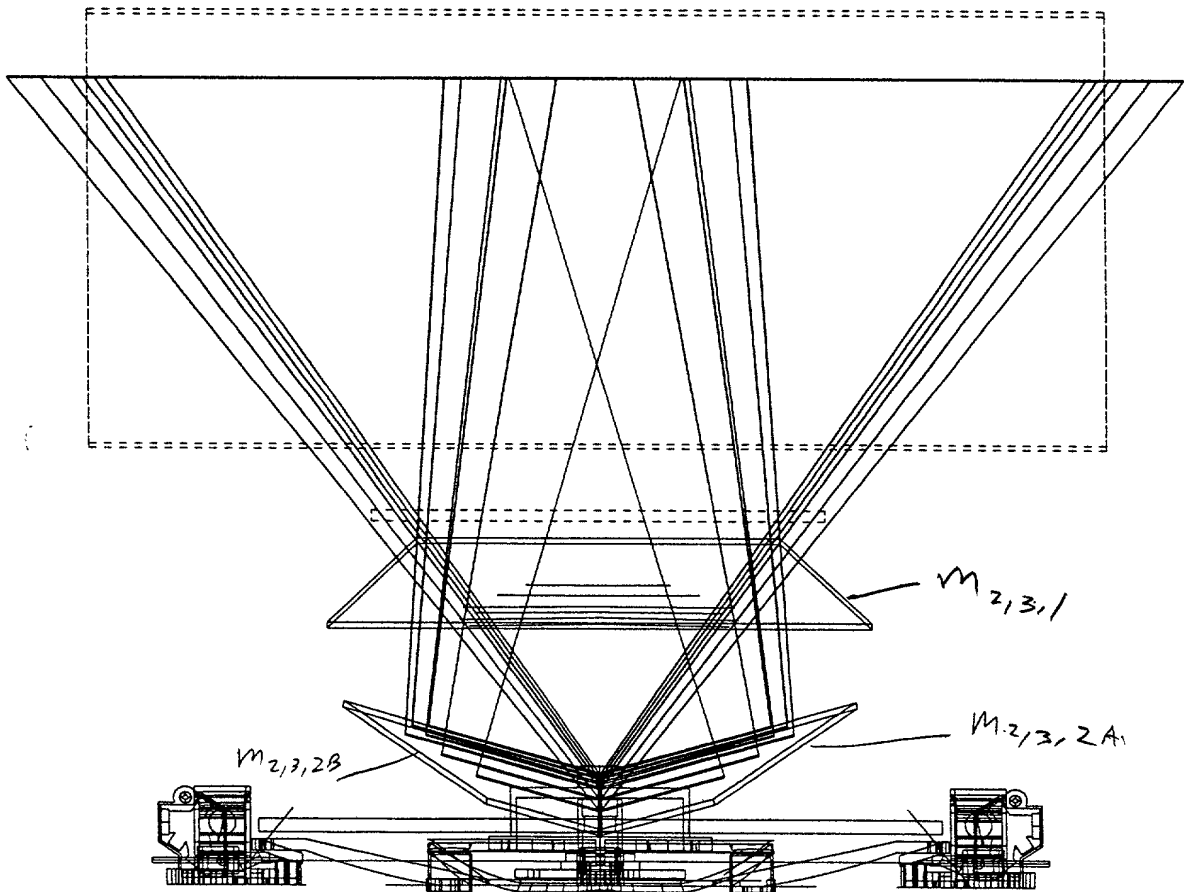


FIG 5J3

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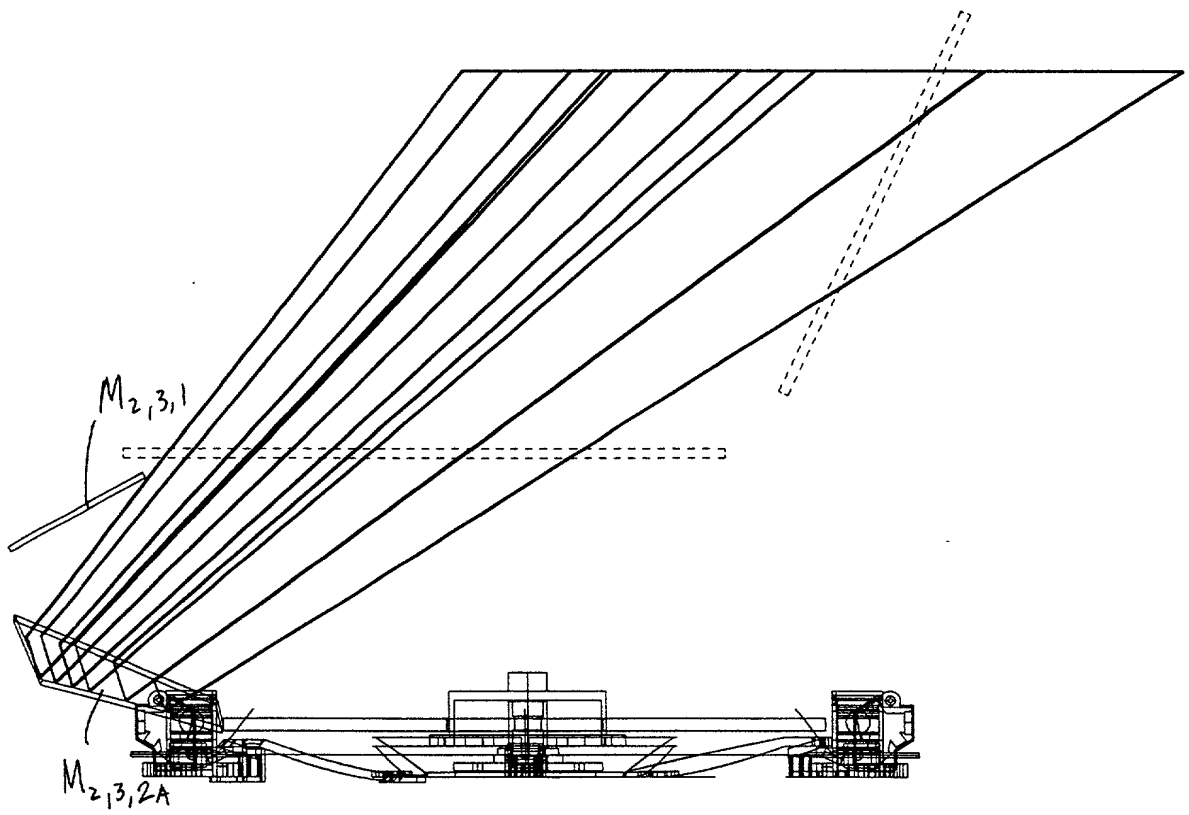


FIG. 5J4

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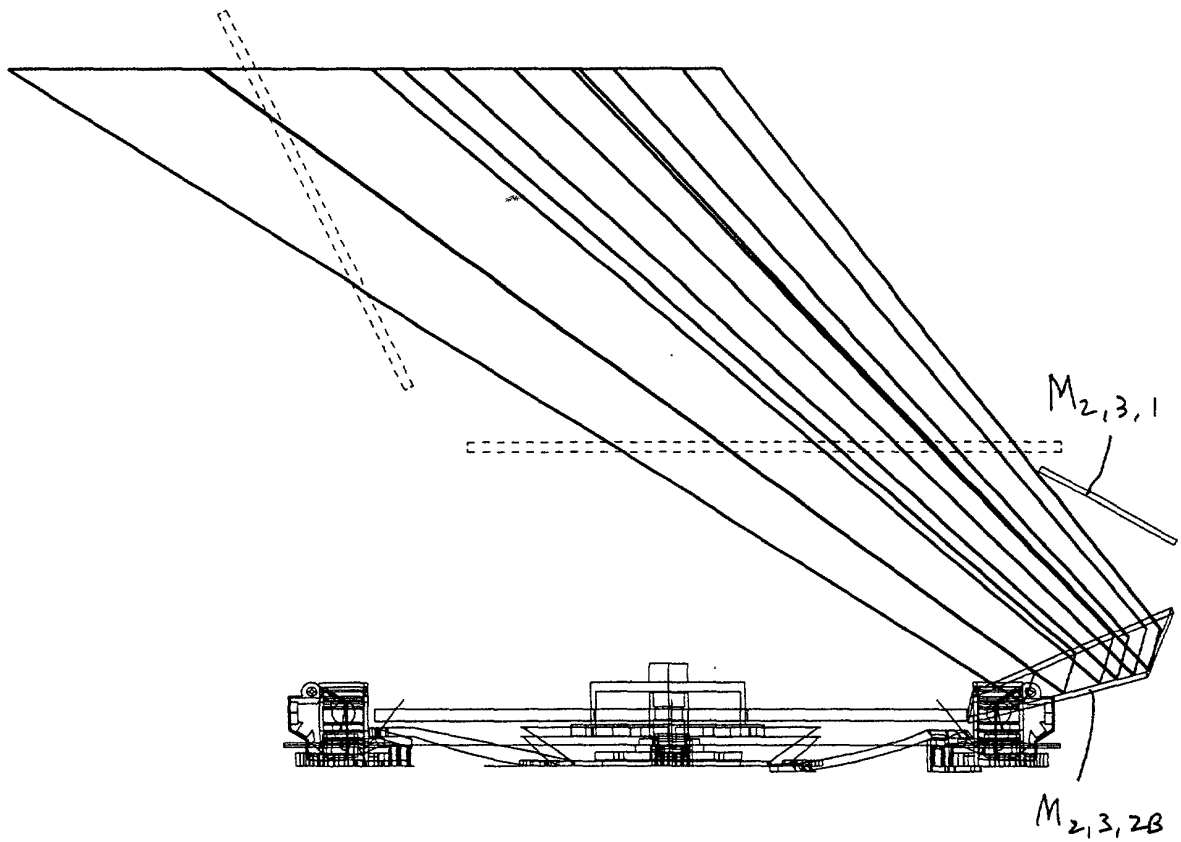


FIG. 5J5

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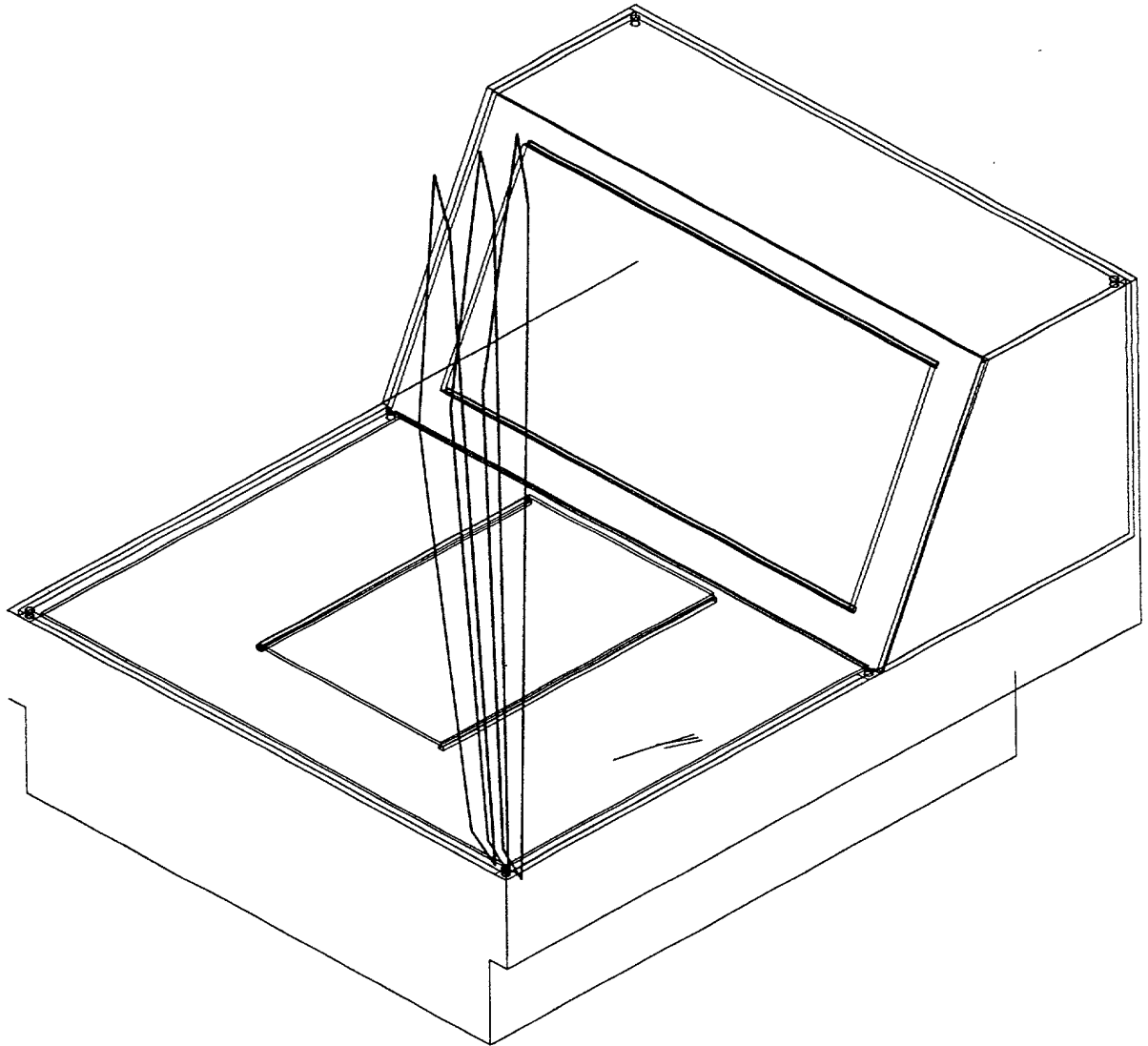


FIG. 5K1

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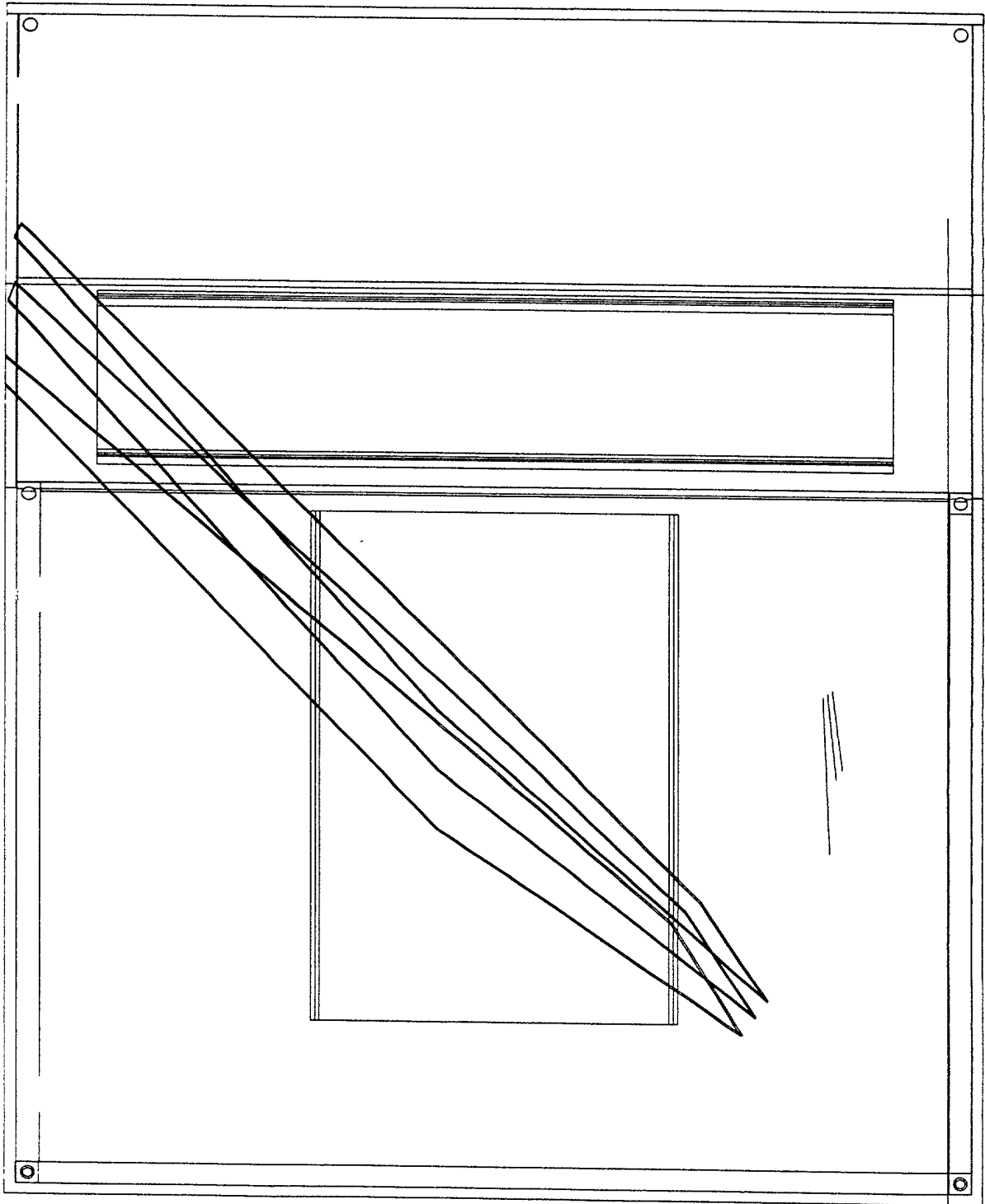


FIG. 5K2

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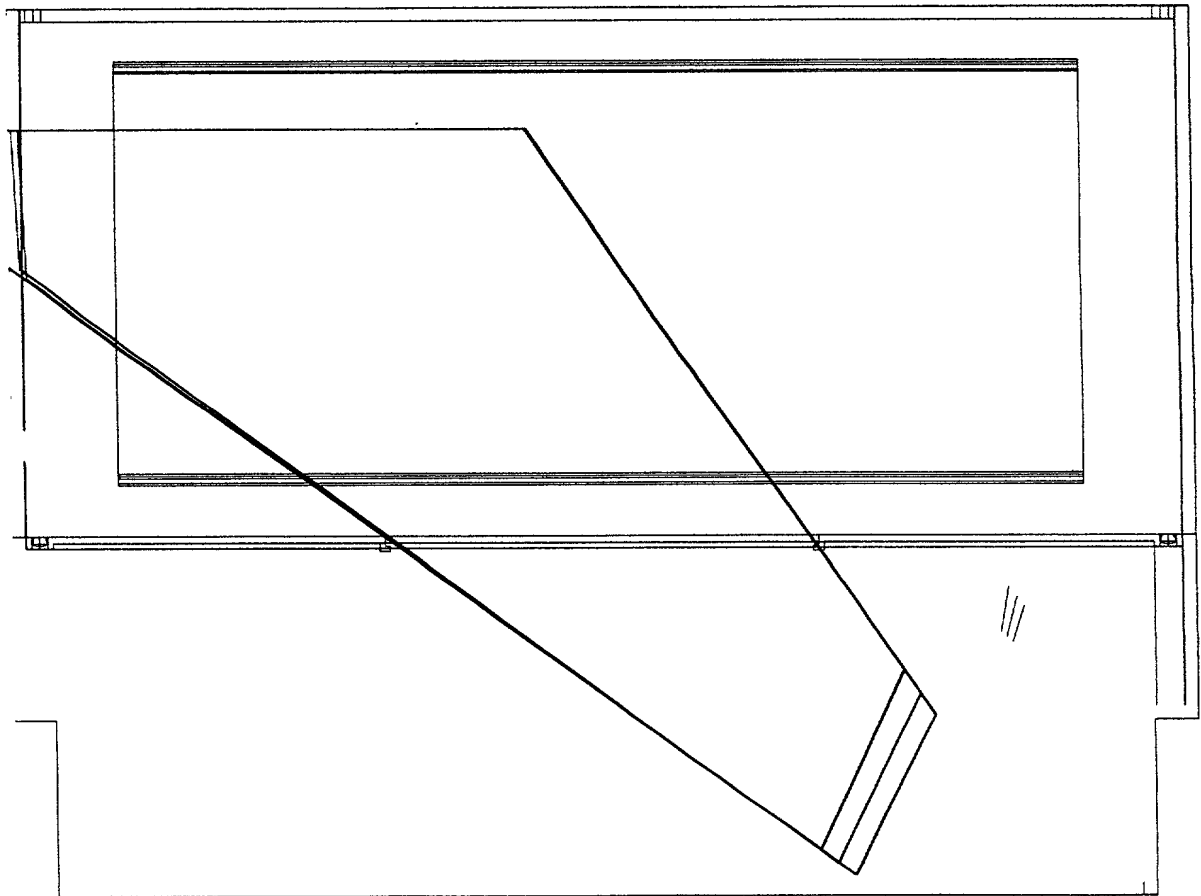


FIG 5K3

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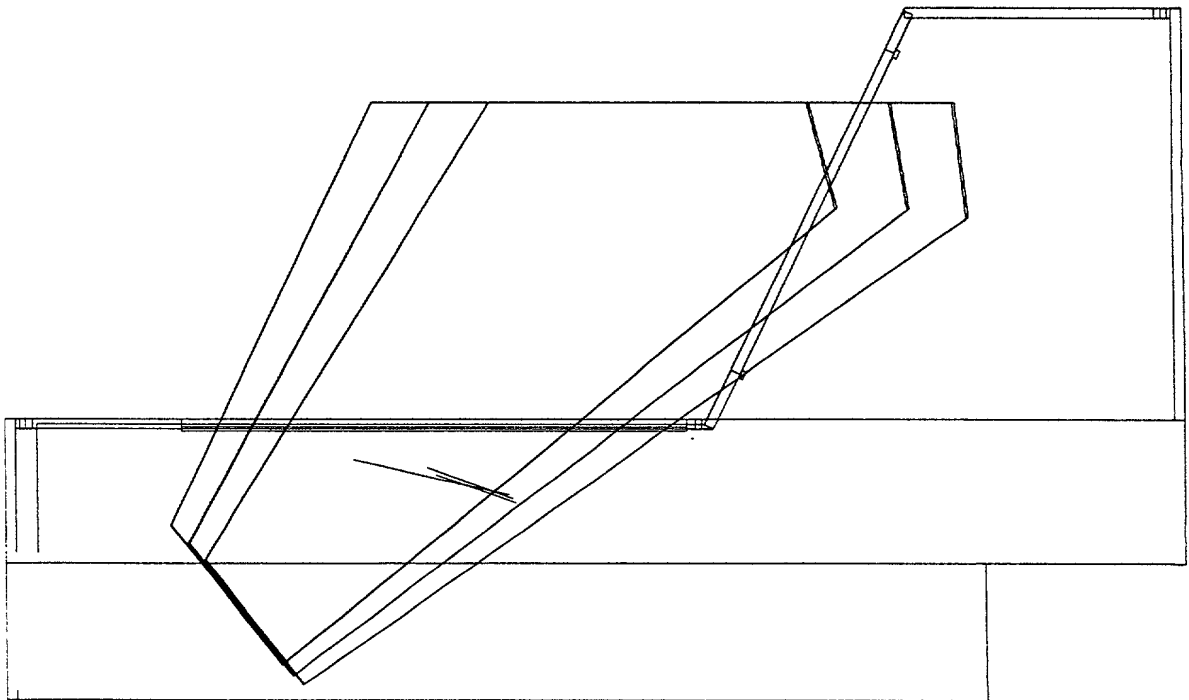


FIG. 5K4

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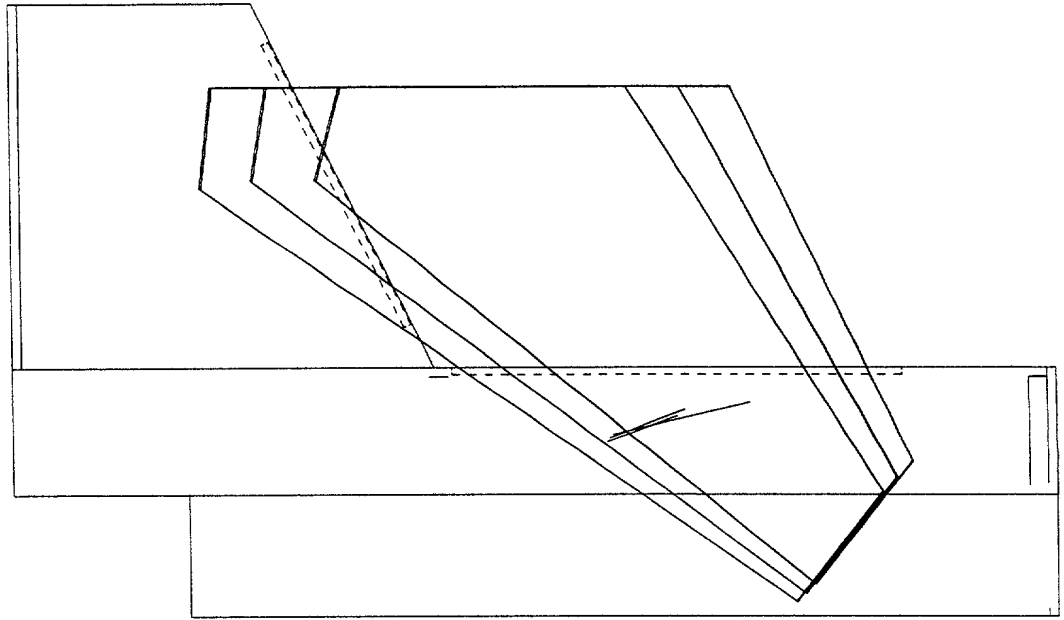


FIG. 5K5

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FIG. 5L1

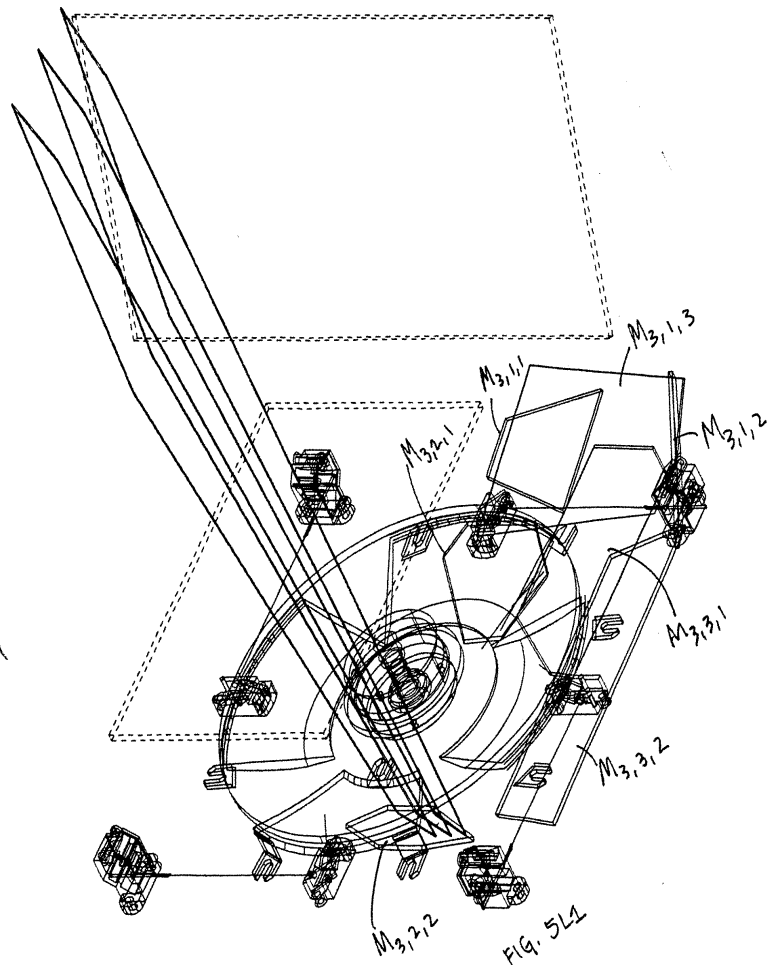


FIG. 5L1

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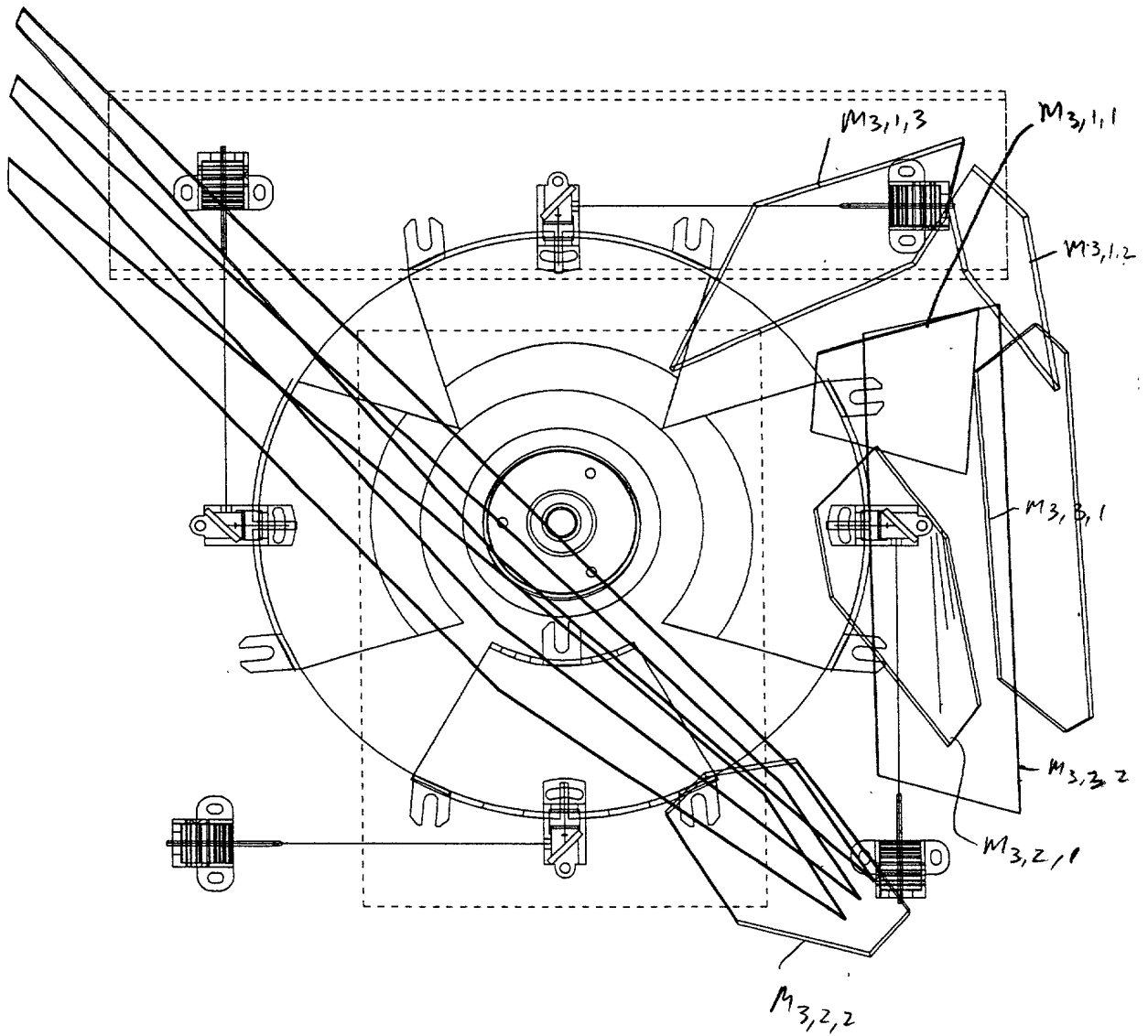


FIG. 5L2

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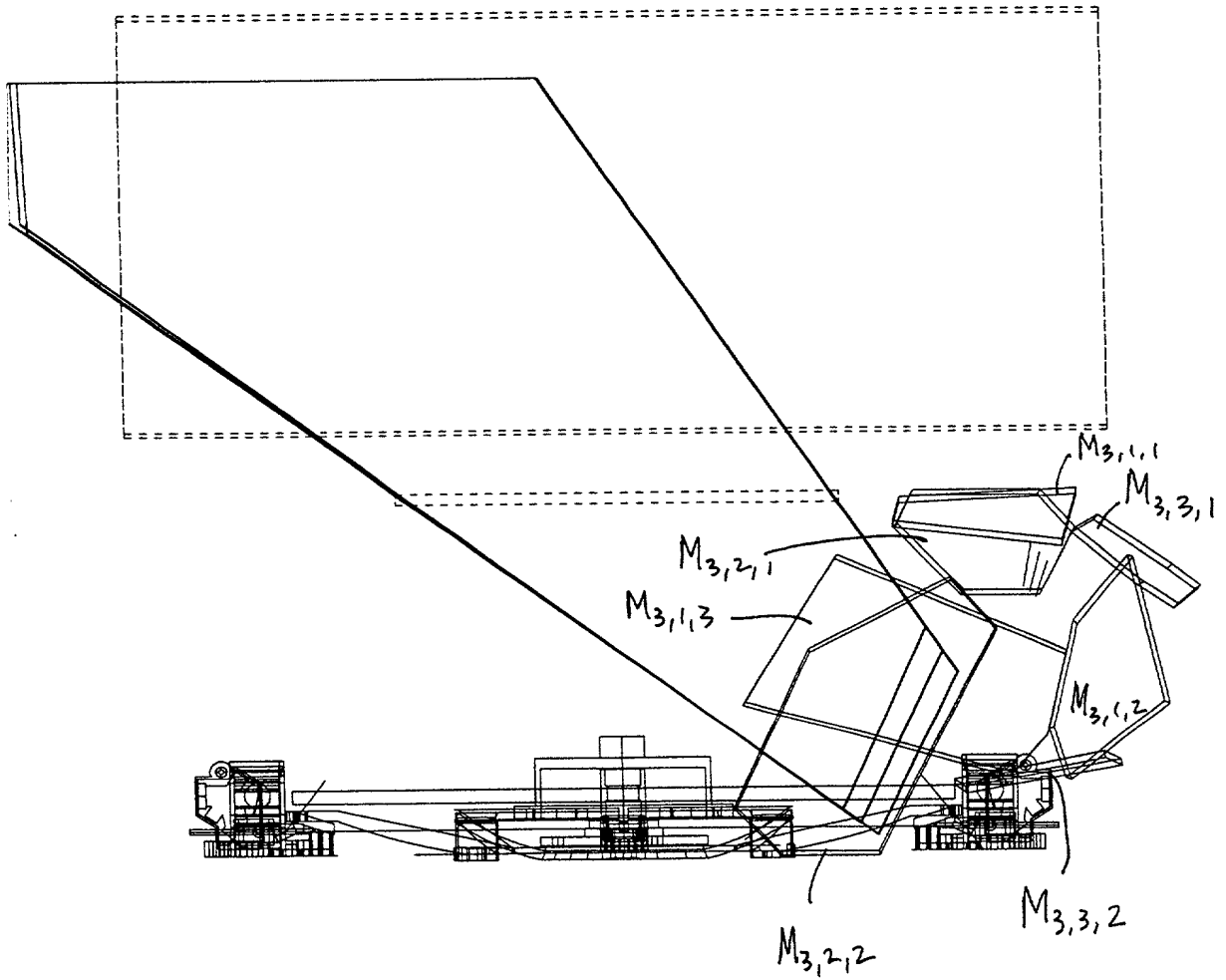


FIG. 5L3

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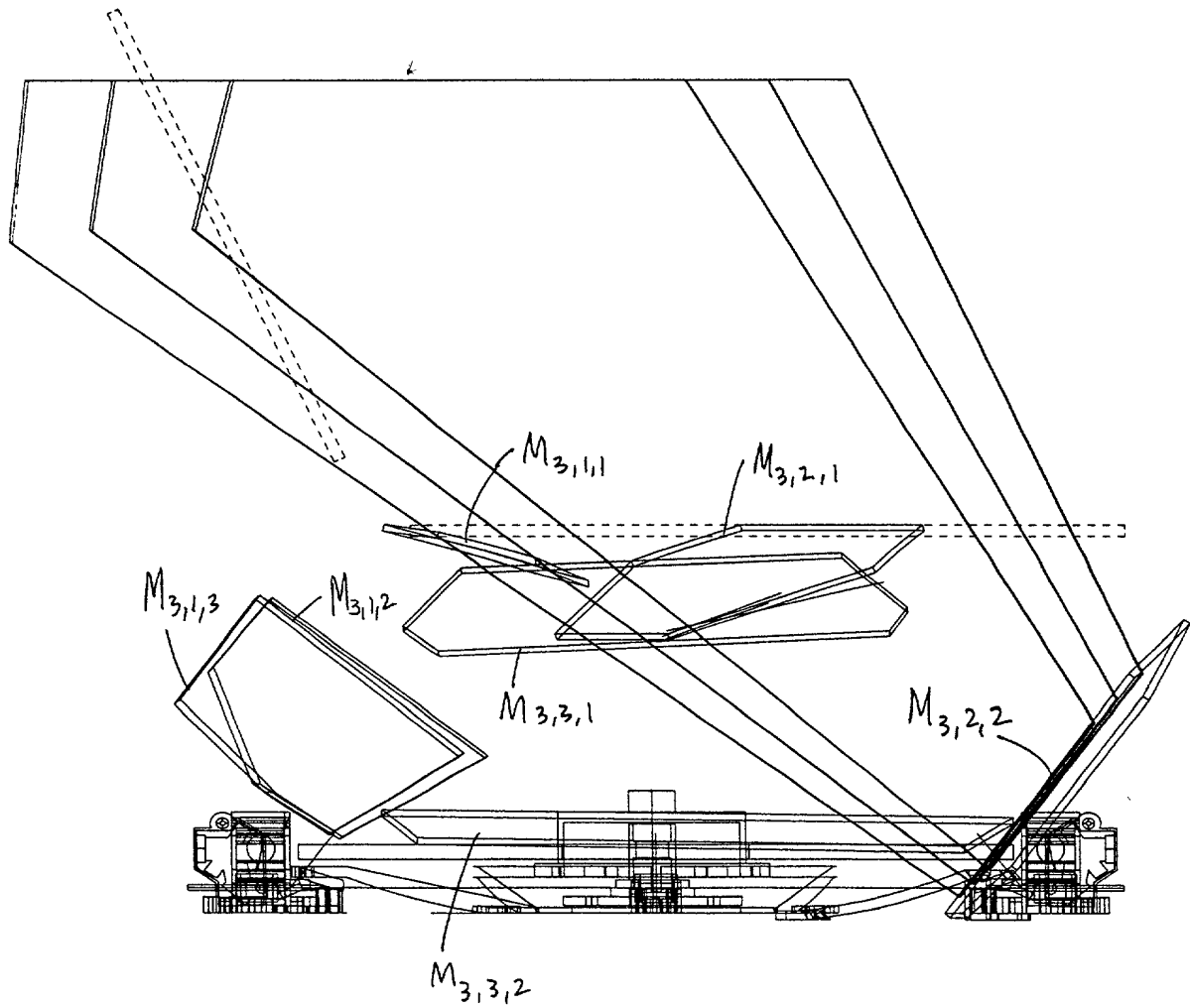


FIG. 5L5

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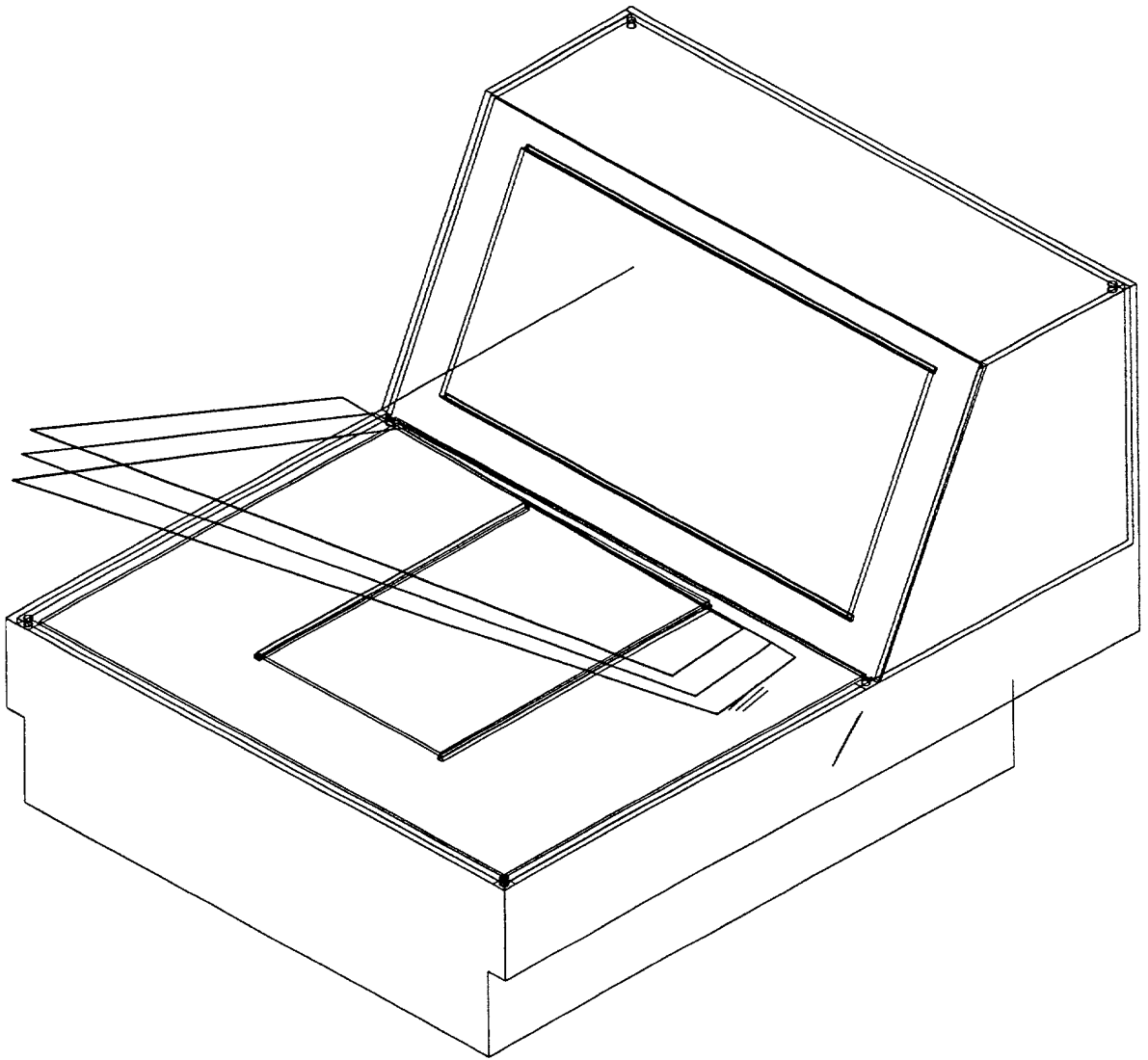


FIG. 5M1

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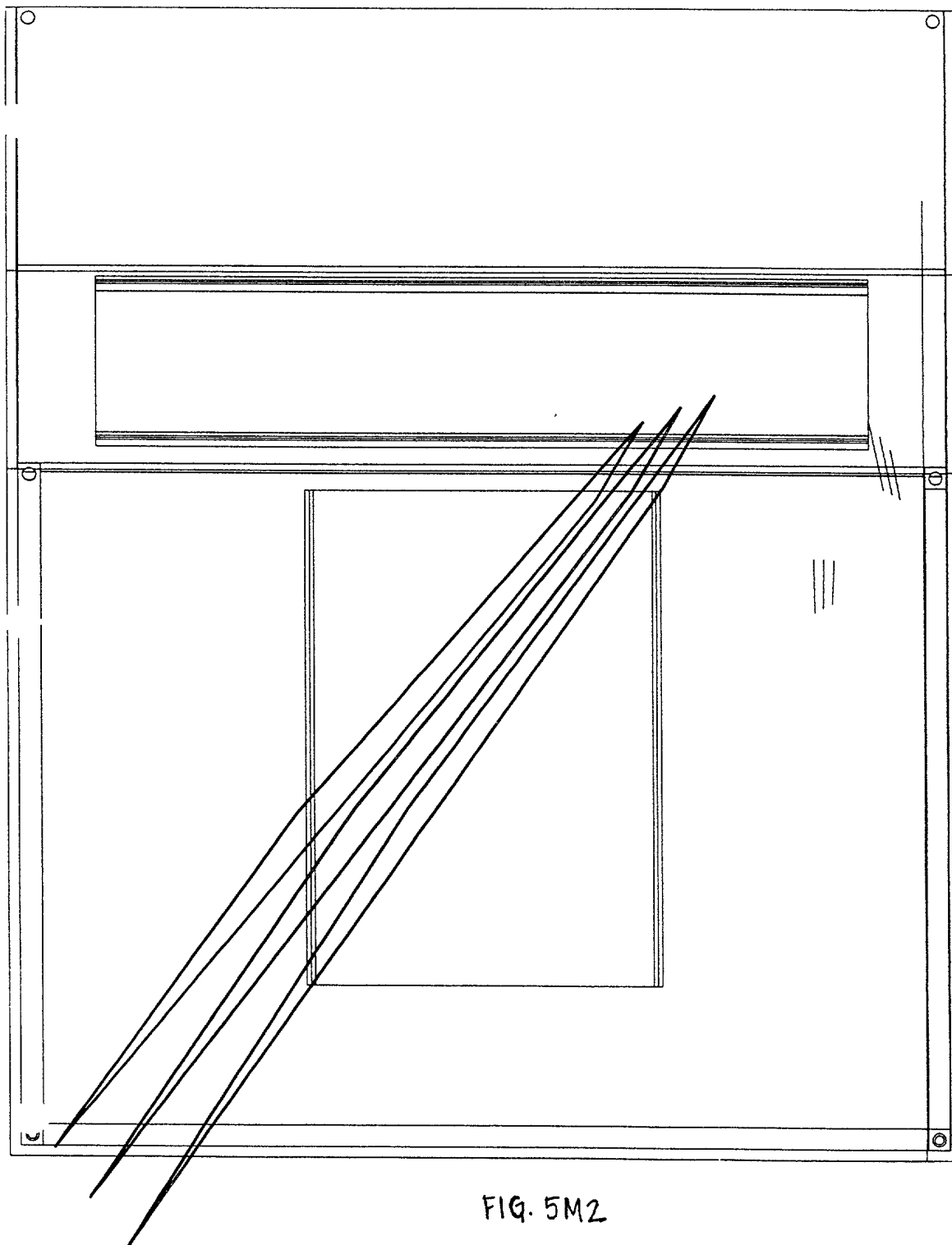


FIG. 5M2

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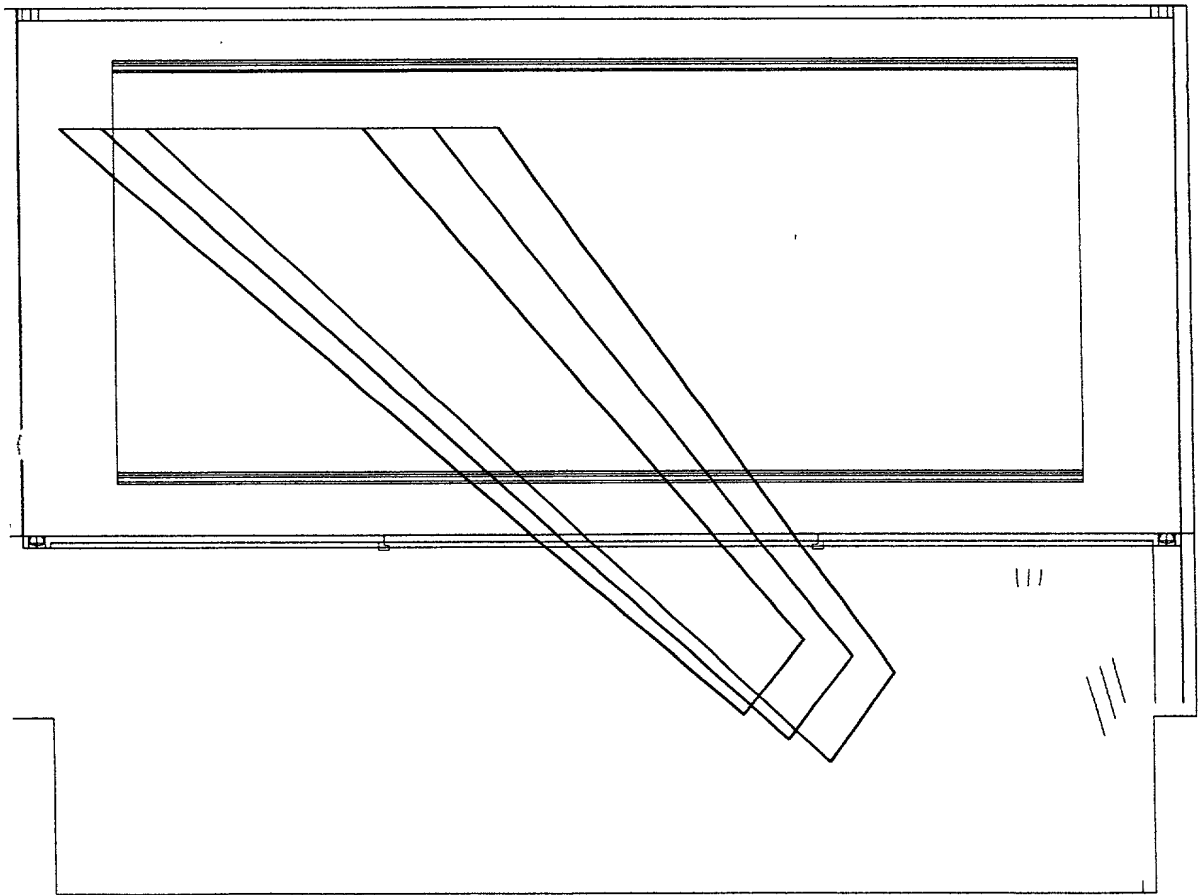


FIG. 5M3

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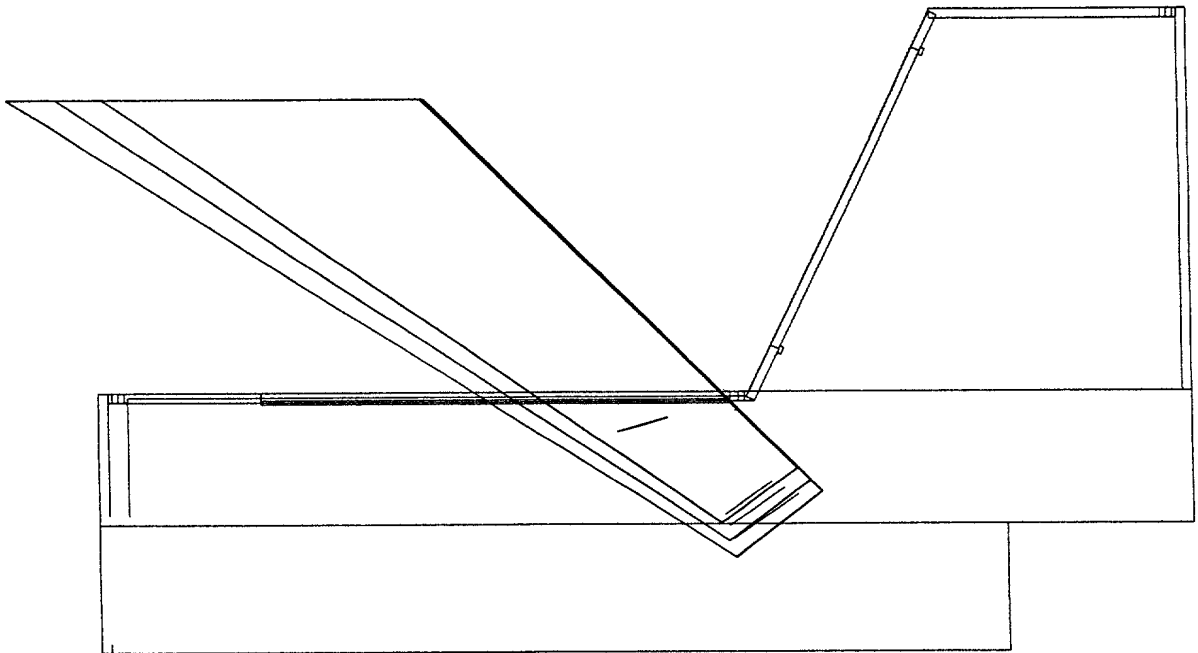


FIG. 5M4

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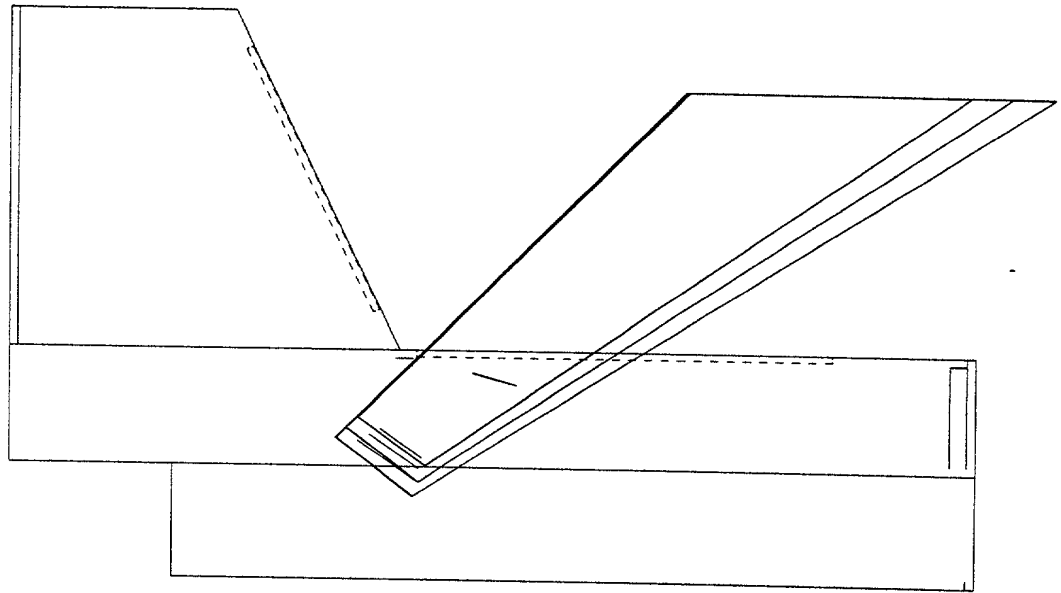
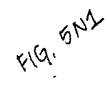


FIG. 5M5

1. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 2. $\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$
 3. $\frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$
 4. $\frac{1}{4} \times \frac{1}{8} = \frac{1}{32}$
 5. $\frac{1}{8} \times \frac{1}{8} = \frac{1}{64}$
 6. $\frac{1}{8} \times \frac{1}{16} = \frac{1}{128}$
 7. $\frac{1}{16} \times \frac{1}{16} = \frac{1}{256}$
 8. $\frac{1}{16} \times \frac{1}{32} = \frac{1}{512}$
 9. $\frac{1}{32} \times \frac{1}{32} = \frac{1}{1024}$
 10. $\frac{1}{32} \times \frac{1}{64} = \frac{1}{2048}$
 11. $\frac{1}{64} \times \frac{1}{64} = \frac{1}{4096}$
 12. $\frac{1}{64} \times \frac{1}{128} = \frac{1}{8192}$
 13. $\frac{1}{128} \times \frac{1}{128} = \frac{1}{16384}$
 14. $\frac{1}{128} \times \frac{1}{256} = \frac{1}{32768}$
 15. $\frac{1}{256} \times \frac{1}{256} = \frac{1}{65536}$
 16. $\frac{1}{256} \times \frac{1}{512} = \frac{1}{131072}$
 17. $\frac{1}{512} \times \frac{1}{512} = \frac{1}{262144}$
 18. $\frac{1}{512} \times \frac{1}{1024} = \frac{1}{524288}$
 19. $\frac{1}{1024} \times \frac{1}{1024} = \frac{1}{1048576}$
 20. $\frac{1}{1024} \times \frac{1}{2048} = \frac{1}{2097152}$
 21. $\frac{1}{2048} \times \frac{1}{2048} = \frac{1}{4194304}$
 22. $\frac{1}{2048} \times \frac{1}{4096} = \frac{1}{8388608}$
 23. $\frac{1}{4096} \times \frac{1}{4096} = \frac{1}{16777216}$
 24. $\frac{1}{4096} \times \frac{1}{8192} = \frac{1}{33554432}$
 25. $\frac{1}{8192} \times \frac{1}{8192} = \frac{1}{67108864}$
 26. $\frac{1}{8192} \times \frac{1}{16384} = \frac{1}{134217728}$
 27. $\frac{1}{16384} \times \frac{1}{16384} = \frac{1}{268435456}$
 28. $\frac{1}{16384} \times \frac{1}{32768} = \frac{1}{536870912}$
 29. $\frac{1}{32768} \times \frac{1}{32768} = \frac{1}{1073741824}$
 30. $\frac{1}{32768} \times \frac{1}{65536} = \frac{1}{2147483648}$
 31. $\frac{1}{65536} \times \frac{1}{65536} = \frac{1}{4294967296}$
 32. $\frac{1}{65536} \times \frac{1}{131072} = \frac{1}{8589934592}$
 33. $\frac{1}{131072} \times \frac{1}{131072} = \frac{1}{17179869184}$
 34. $\frac{1}{131072} \times \frac{1}{262144} = \frac{1}{34359738368}$
 35. $\frac{1}{262144} \times \frac{1}{262144} = \frac{1}{68719476736}$
 36. $\frac{1}{262144} \times \frac{1}{524288} = \frac{1}{137438953472}$
 37. $\frac{1}{524288} \times \frac{1}{524288} = \frac{1}{274877906944}$
 38. $\frac{1}{524288} \times \frac{1}{1048576} = \frac{1}{549755813888}$
 39. $\frac{1}{1048576} \times \frac{1}{1048576} = \frac{1}{1099511627776}$
 40. $\frac{1}{1048576} \times \frac{1}{2097152} = \frac{1}{2199023255552}$
 41. $\frac{1}{2097152} \times \frac{1}{2097152} = \frac{1}{4398046511104}$
 42. $\frac{1}{2097152} \times \frac{1}{4194304} = \frac{1}{8796093022208}$
 43. $\frac{1}{4194304} \times \frac{1}{4194304} = \frac{1}{17592186044416}$
 44. $\frac{1}{4194304} \times \frac{1}{8388608} = \frac{1}{35184372088832}$
 45. $\frac{1}{8388608} \times \frac{1}{8388608} = \frac{1}{70368744177664}$
 46. $\frac{1}{8388608} \times \frac{1}{16777216} = \frac{1}{140737488355328}$
 47. $\frac{1}{16777216} \times \frac{1}{16777216} = \frac{1}{281474976710656}$
 48. $\frac{1}{16777216} \times \frac{1}{33554432} = \frac{1}{562949953421312}$
 49. $\frac{1}{33554432} \times \frac{1}{33554432} = \frac{1}{1125899906842624}$
 50. $\frac{1}{33554432} \times \frac{1}{67108864} = \frac{1}{2251799813685248}$
 51. $\frac{1}{67108864} \times \frac{1}{67108864} = \frac{1}{4503599627370496}$
 52. $\frac{1}{67108864} \times \frac{1}{134217728} = \frac{1}{9007199254740992}$
 53. $\frac{1}{134217728} \times \frac{1}{134217728} = \frac{1}{18014398509481984}$
 54. $\frac{1}{134217728} \times \frac{1}{268435456} = \frac{1}{36028797018963968}$
 55. $\frac{1}{268435456} \times \frac{1}{268435456} = \frac{1}{72057594037927936}$
 56. $\frac{1}{268435456} \times \frac{1}{536870912} = \frac{1}{144115188075855872}$
 57. $\frac{1}{536870912} \times \frac{1}{536870912} = \frac{1}{288230376151711744}$
 58. $\frac{1}{536870912} \times \frac{1}{1073741824} = \frac{1}{576460752303423488}$
 59. $\frac{1}{1073741824} \times \frac{1}{1073741824} = \frac{1}{1152921504606846976}$
 60. $\frac{1}{1073741824} \times \frac{1}{2147483648} = \frac{1}{2305843009213693952}$
 61. $\frac{1}{2147483648} \times \frac{1}{2147483648} = \frac{1}{4611686018427387904}$
 62. $\frac{1}{2147483648} \times \frac{1}{4294967296} = \frac{1}{9223372036854775808}$
 63. $\frac{1}{4294967296} \times \frac{1}{4294967296} = \frac{1}{18446744073709551616}$
 64. $\frac{1}{4294967296} \times \frac{1}{8589934592} = \frac{1}{36893488147419103232}$
 65. $\frac{1}{8589934592} \times \frac{1}{8589934592} = \frac{1}{73786976294838206464}$
 66. $\frac{1}{8589934592} \times \frac{1}{16777216} = \frac{1}{147573952589676412928}$
 67. $\frac{1}{16777216} \times \frac{1}{16777216} = \frac{1}{295147905179352825856}$
 68. $\frac{1}{16777216} \times \frac{1}{33554432} = \frac{1}{590295810358705651712}$
 69. $\frac{1}{33554432} \times \frac{1}{33554432} = \frac{1}{1180591620717411303424}$
 70. $\frac{1}{33554432} \times \frac{1}{67108864} = \frac{1}{2361183241434822606848}$
 71. $\frac{1}{67108864} \times \frac{1}{67108864} = \frac{1}{4722366482869645213696}$
 72. $\frac{1}{67108864} \times \frac{1}{134217728} = \frac{1}{9444732965739290427392}$
 73. $\frac{1}{134217728} \times \frac{1}{$



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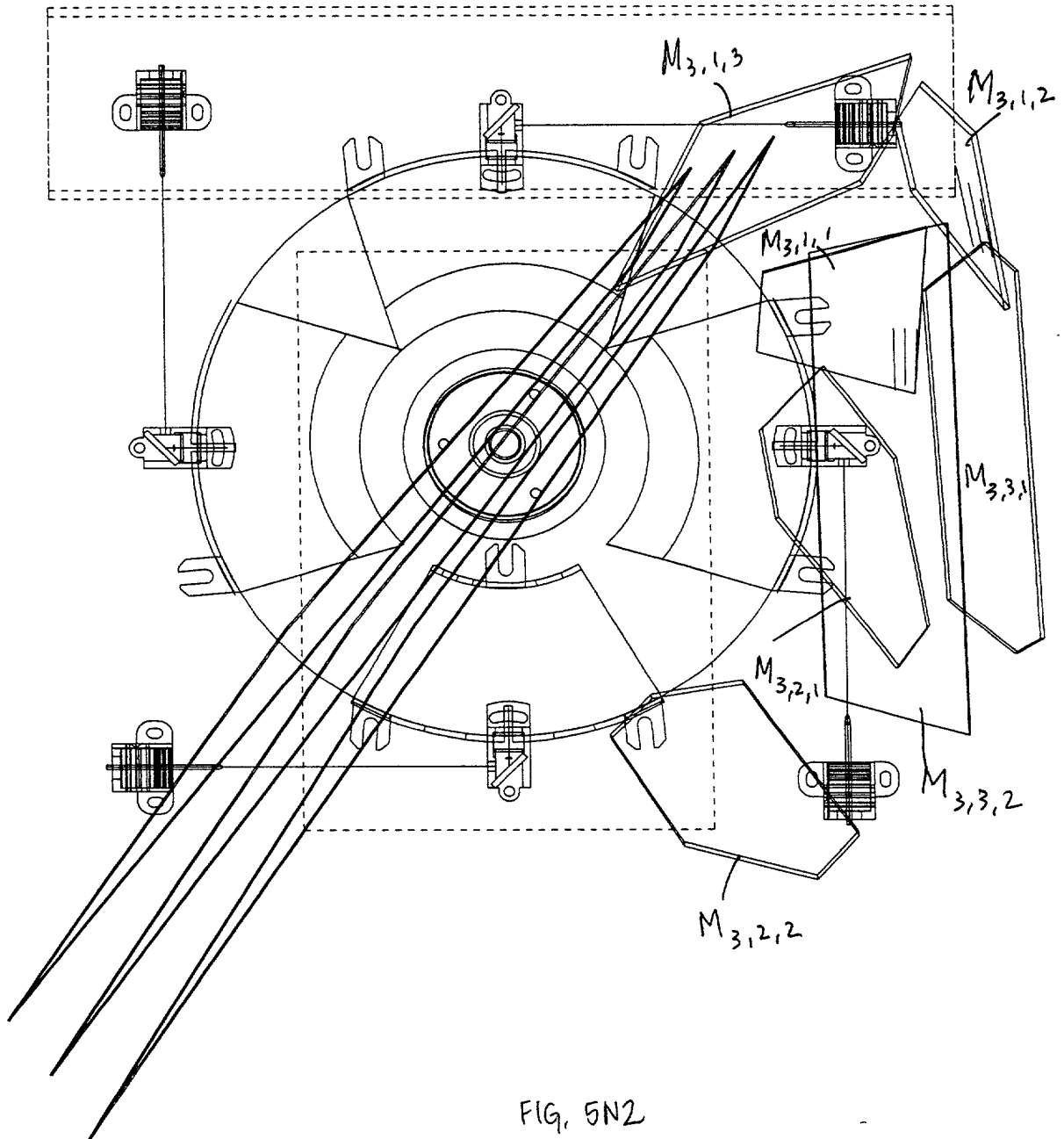


FIG. 5N2

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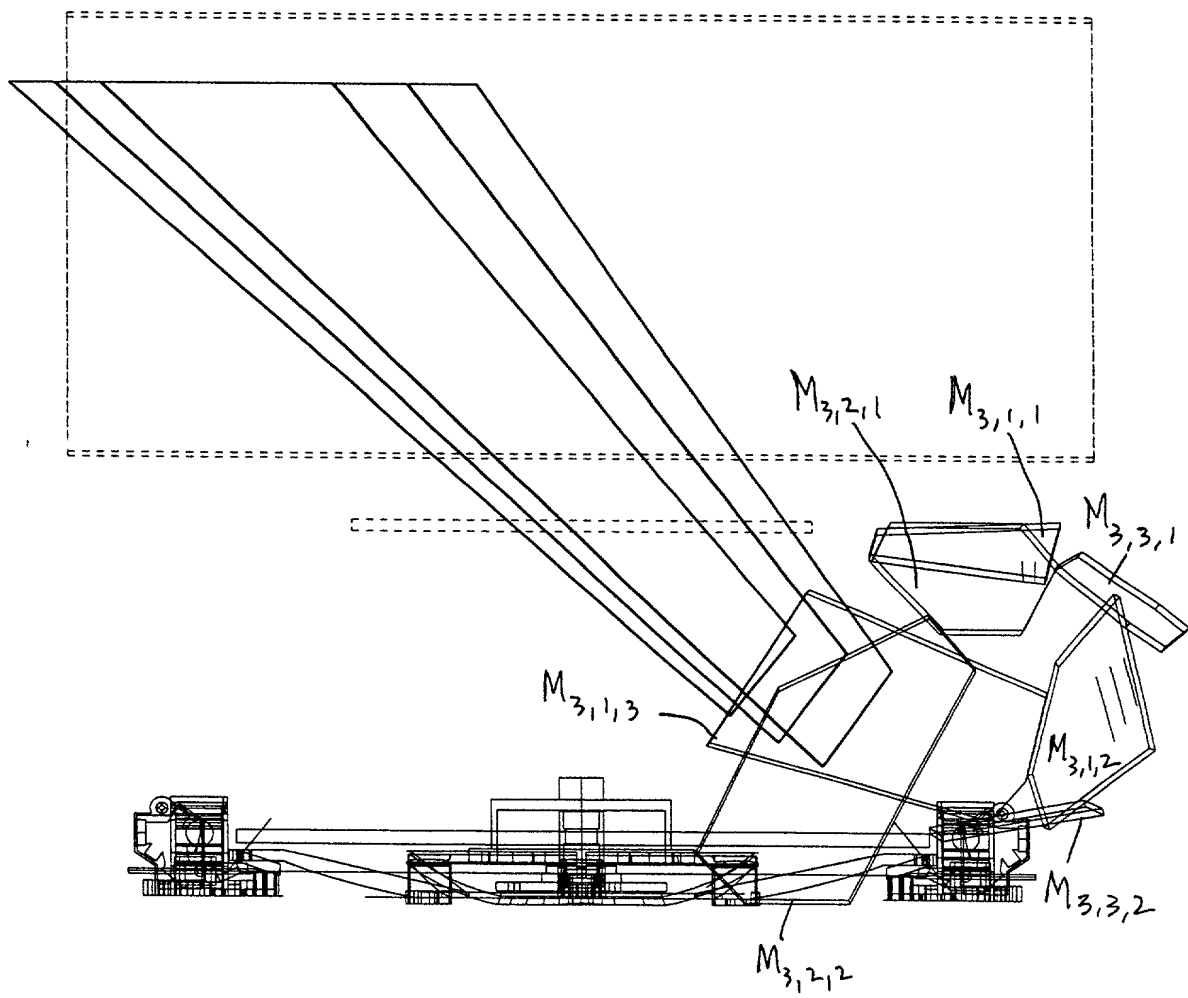


FIG. 5N3

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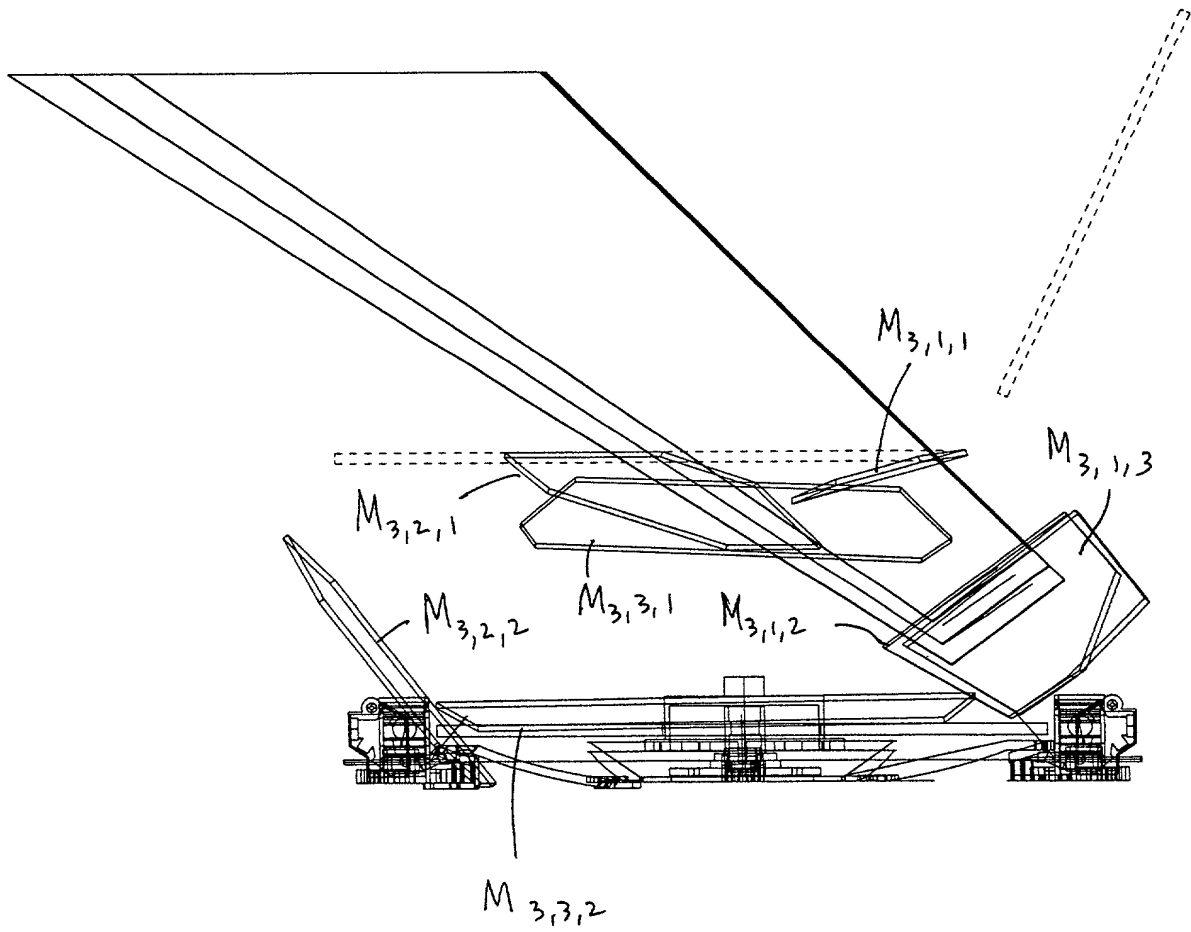


FIG. 5N4

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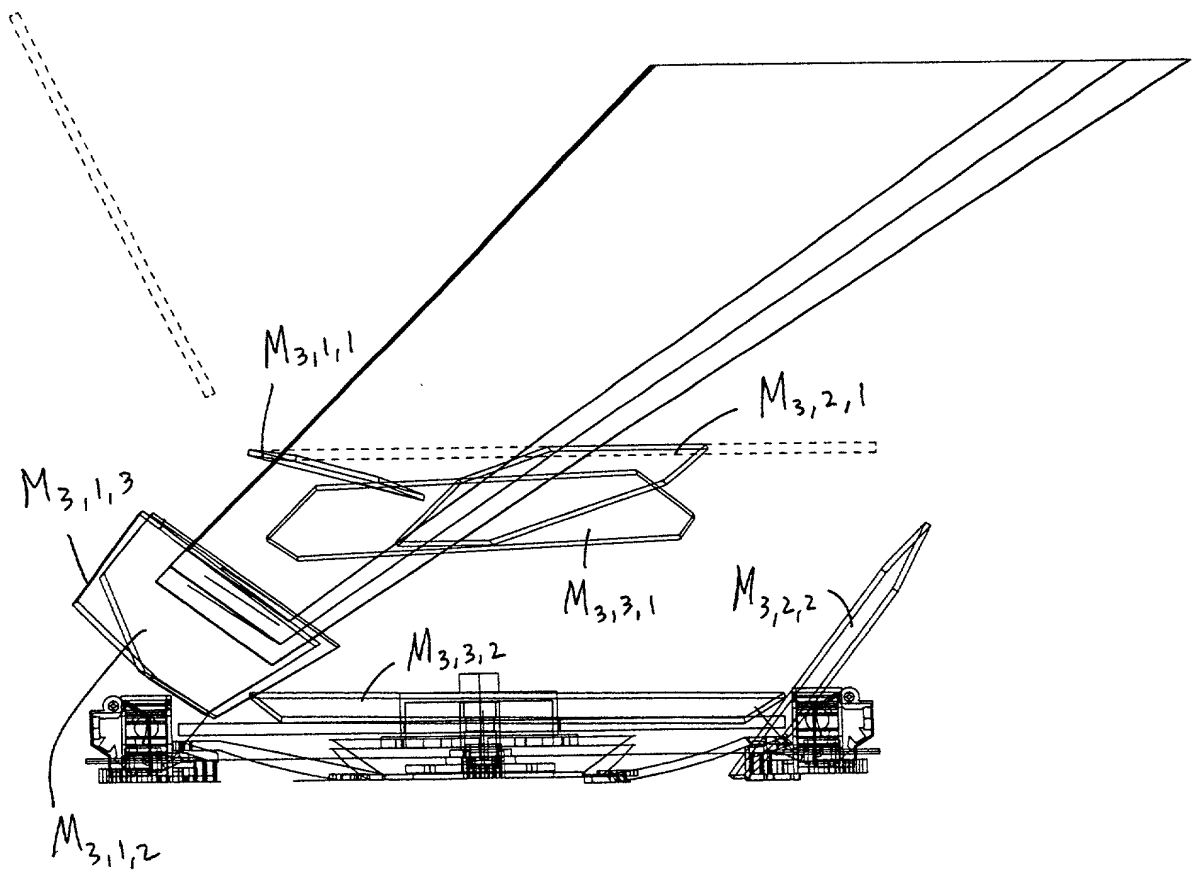


FIG. 5N5

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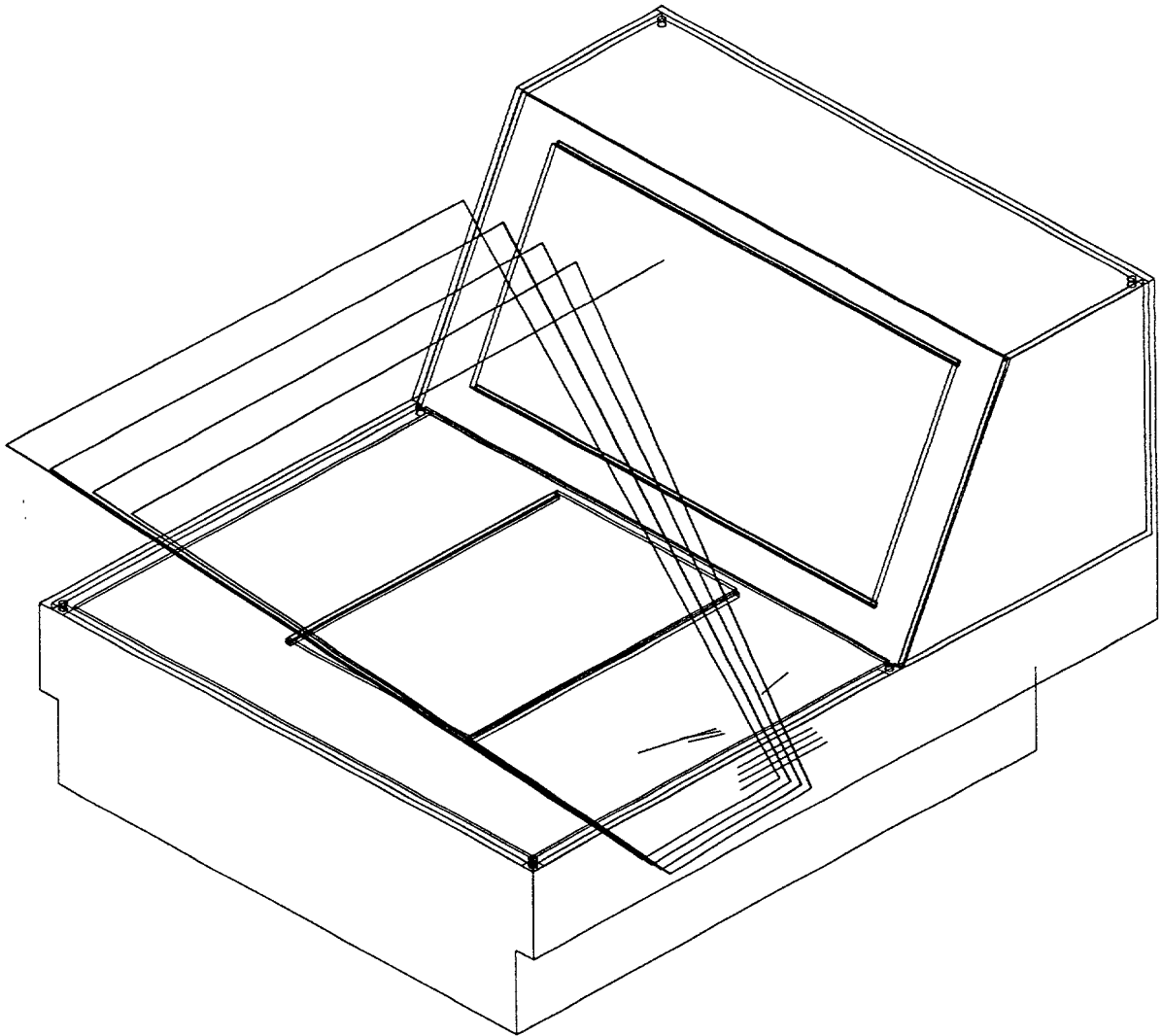


FIG. 501

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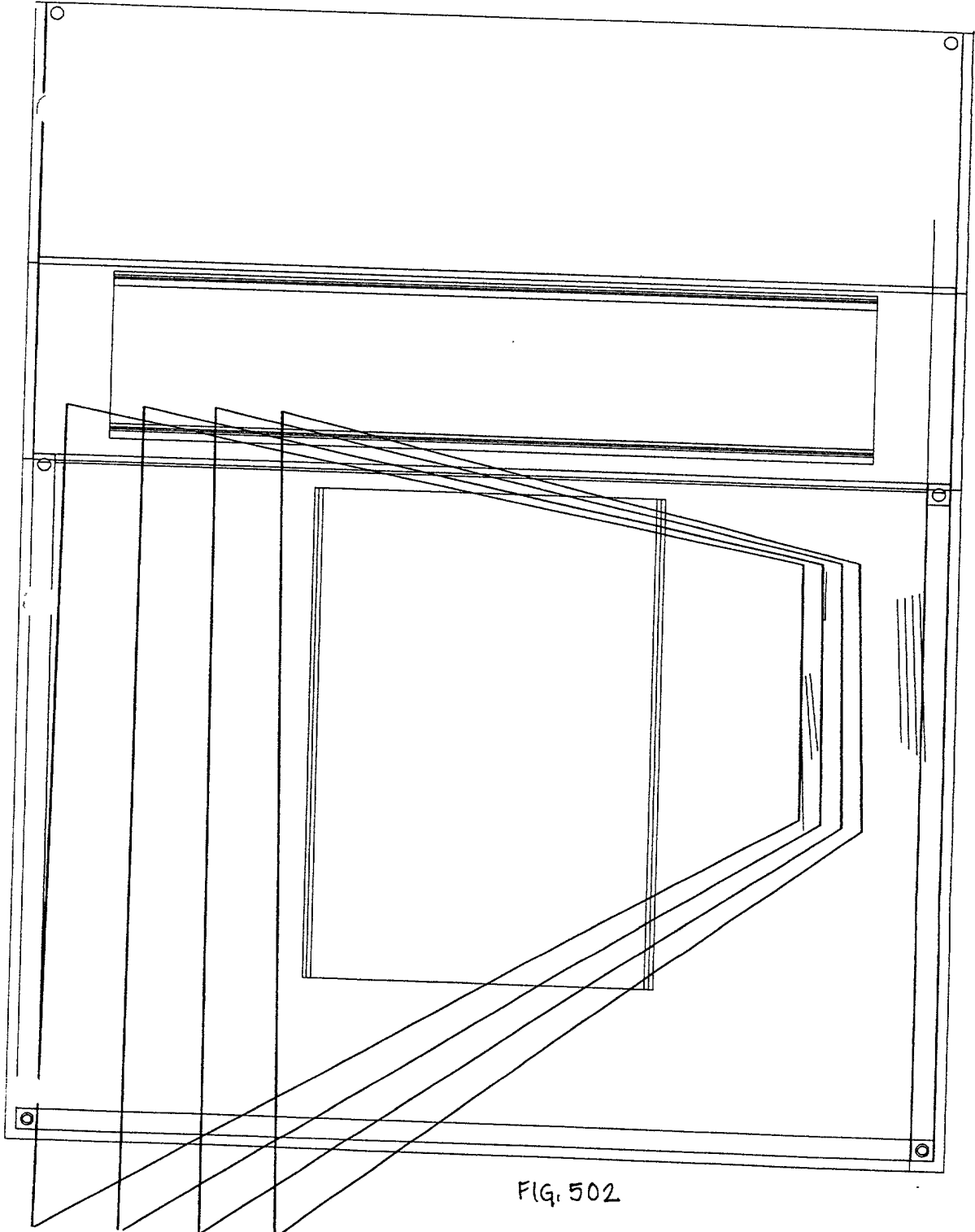


FIG. 502

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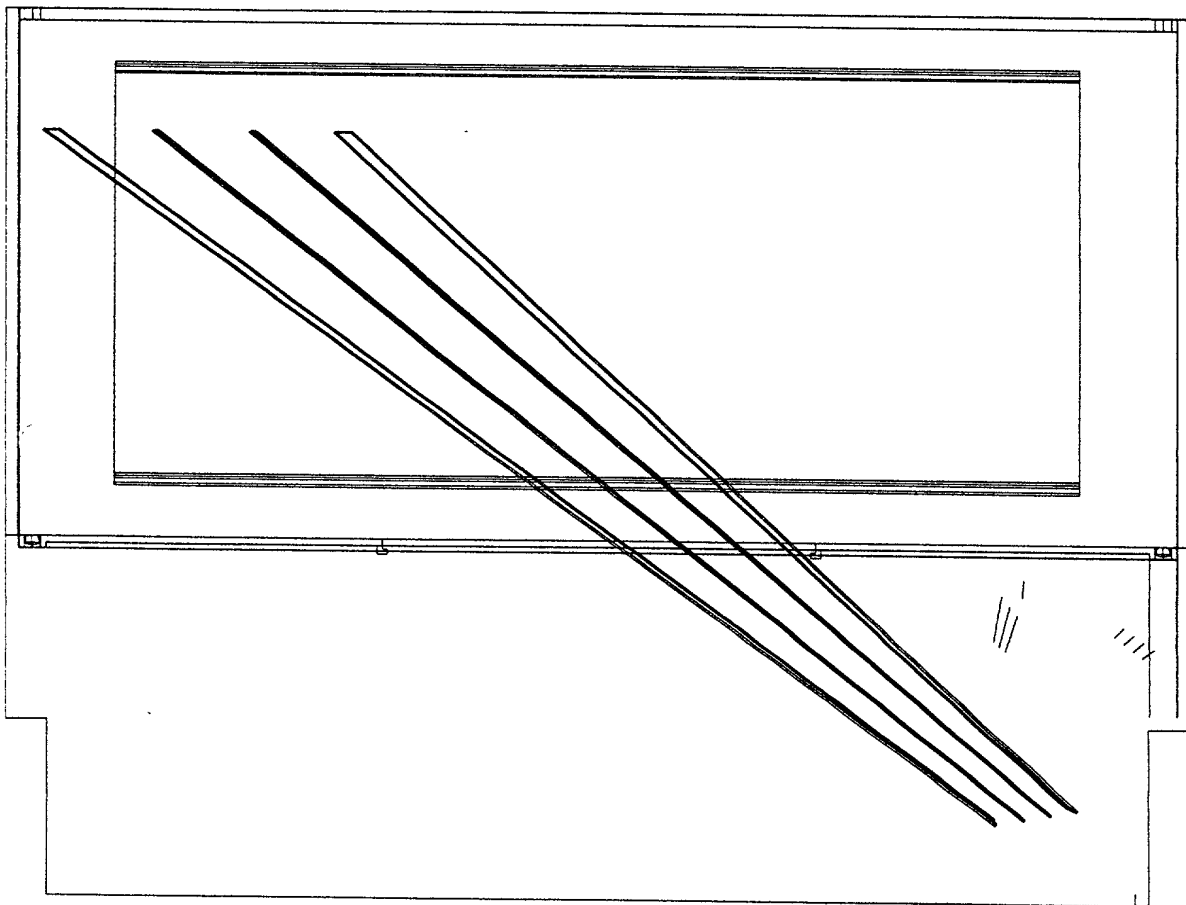


FIG. 503

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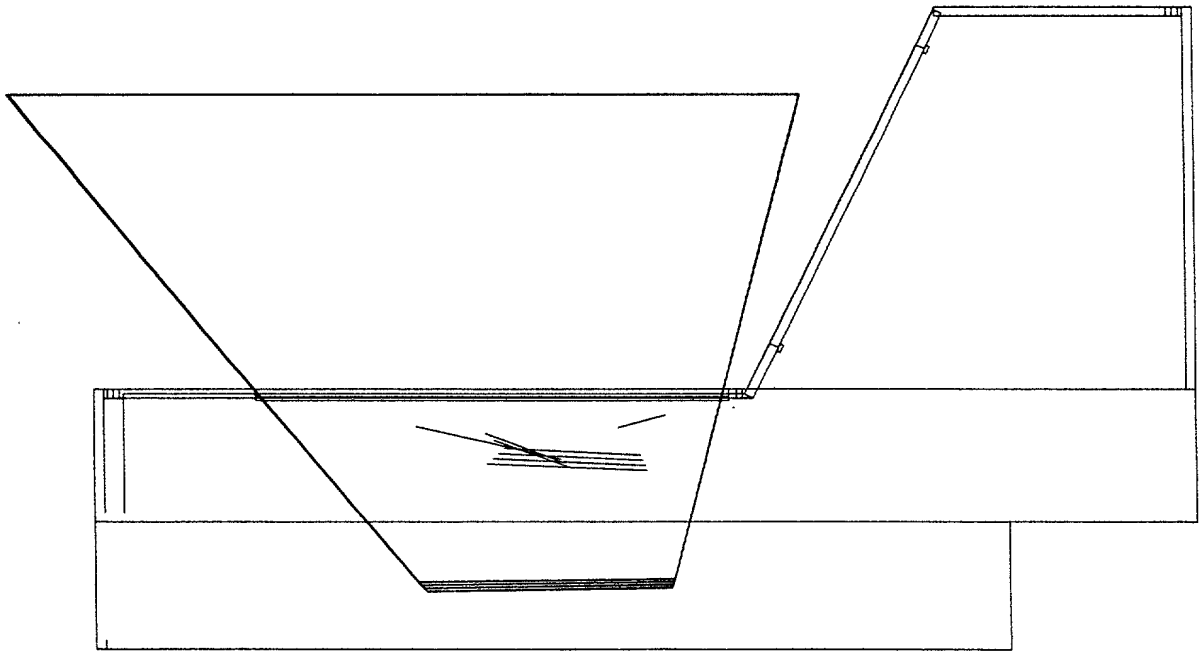


FIG. 50A

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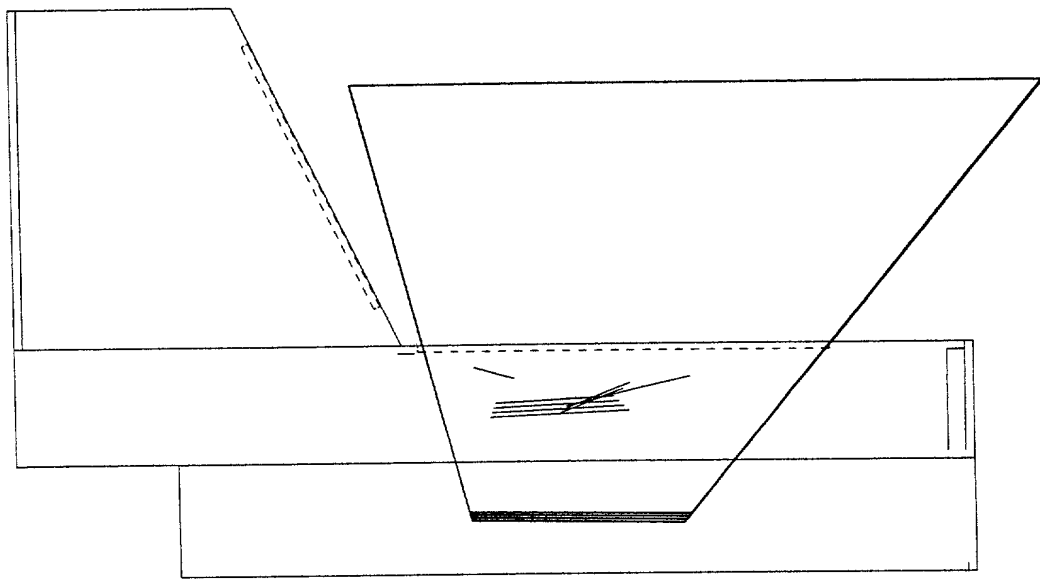


FIG. 505

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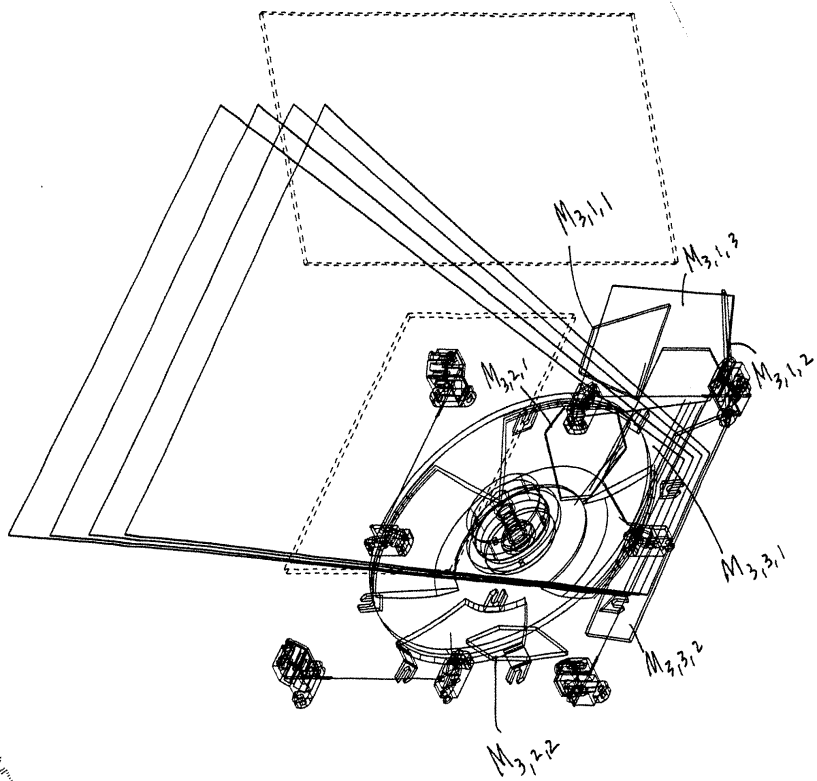


FIG. 581

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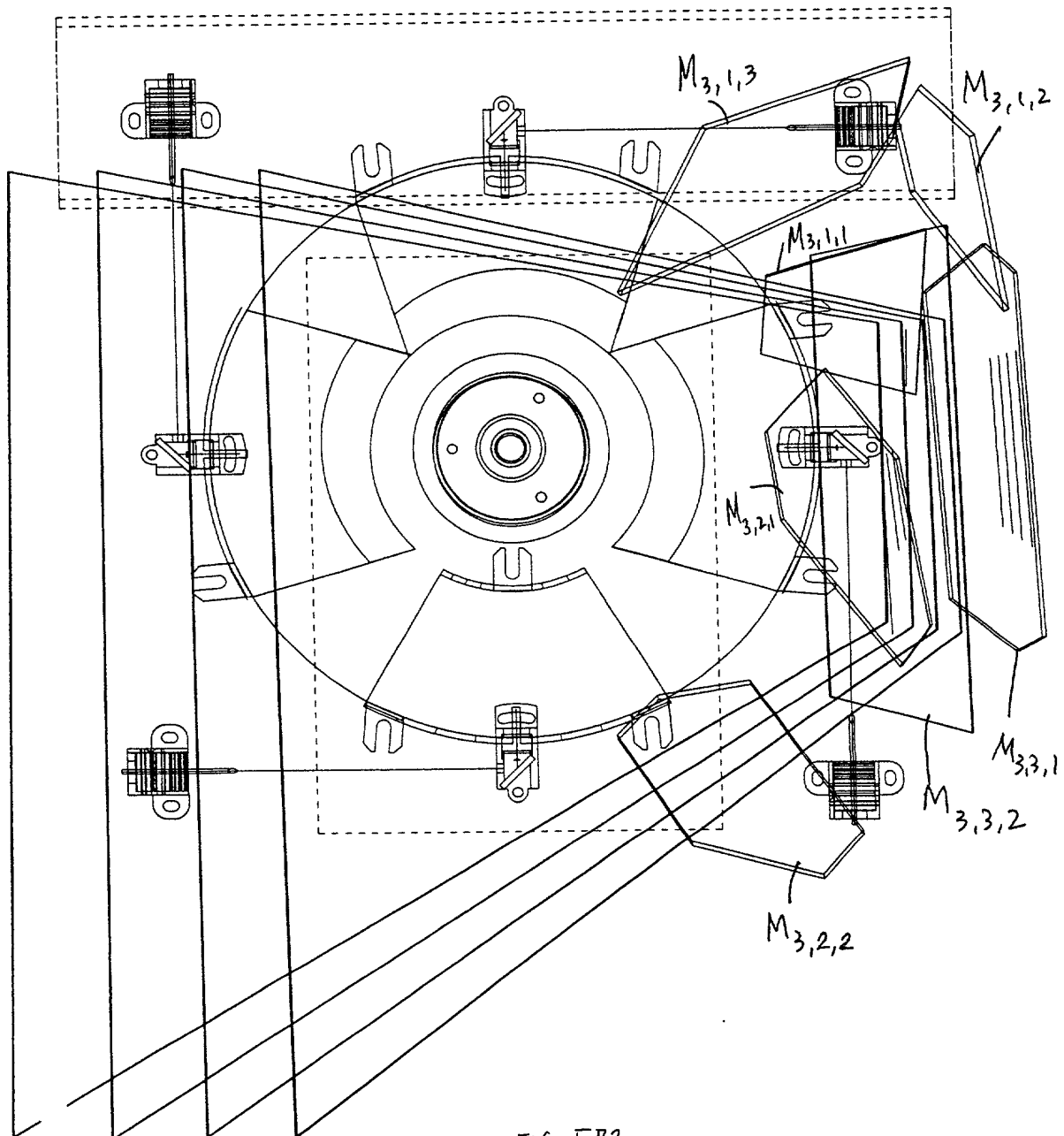


FIG. 5P2

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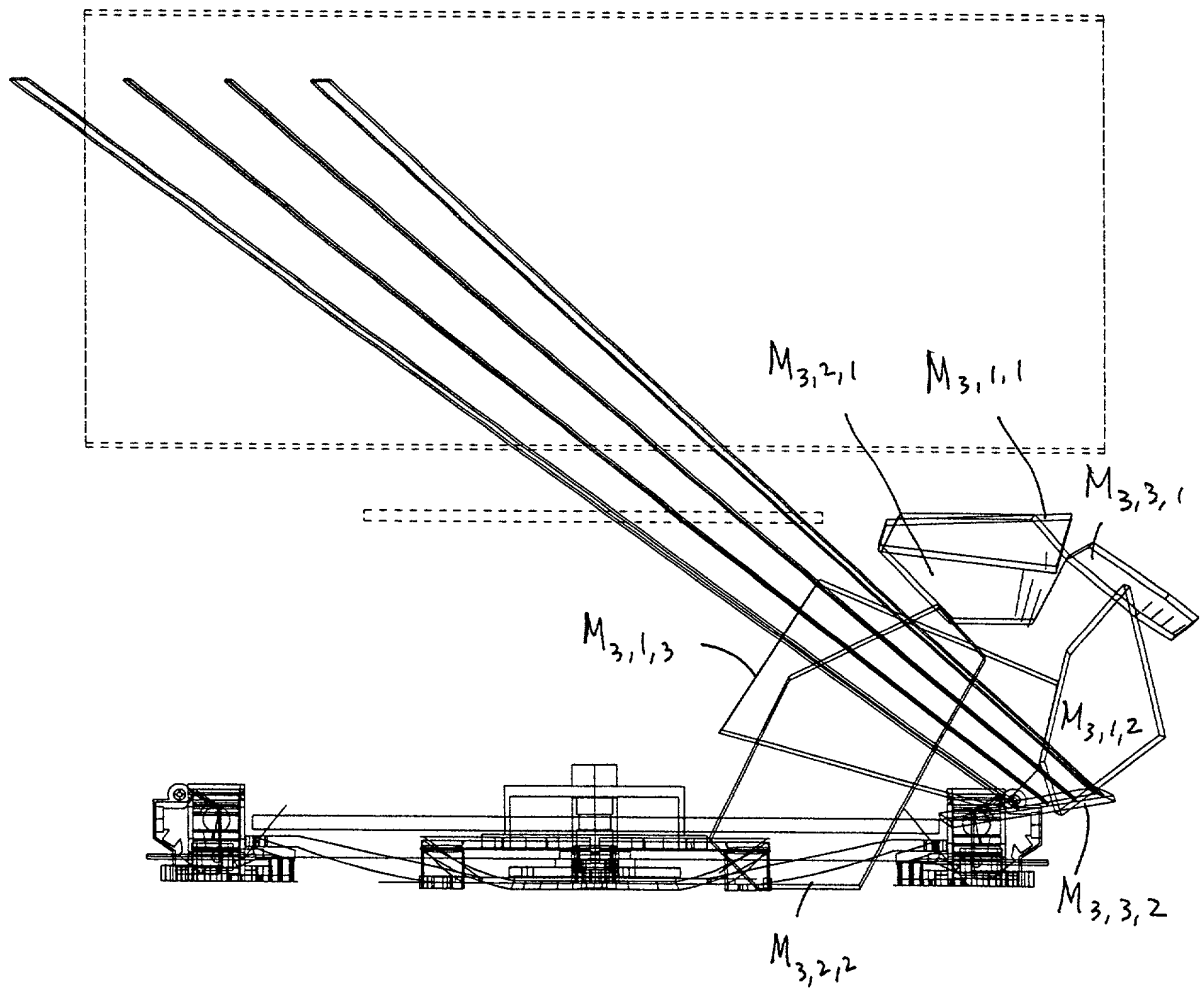


FIG. 5P3

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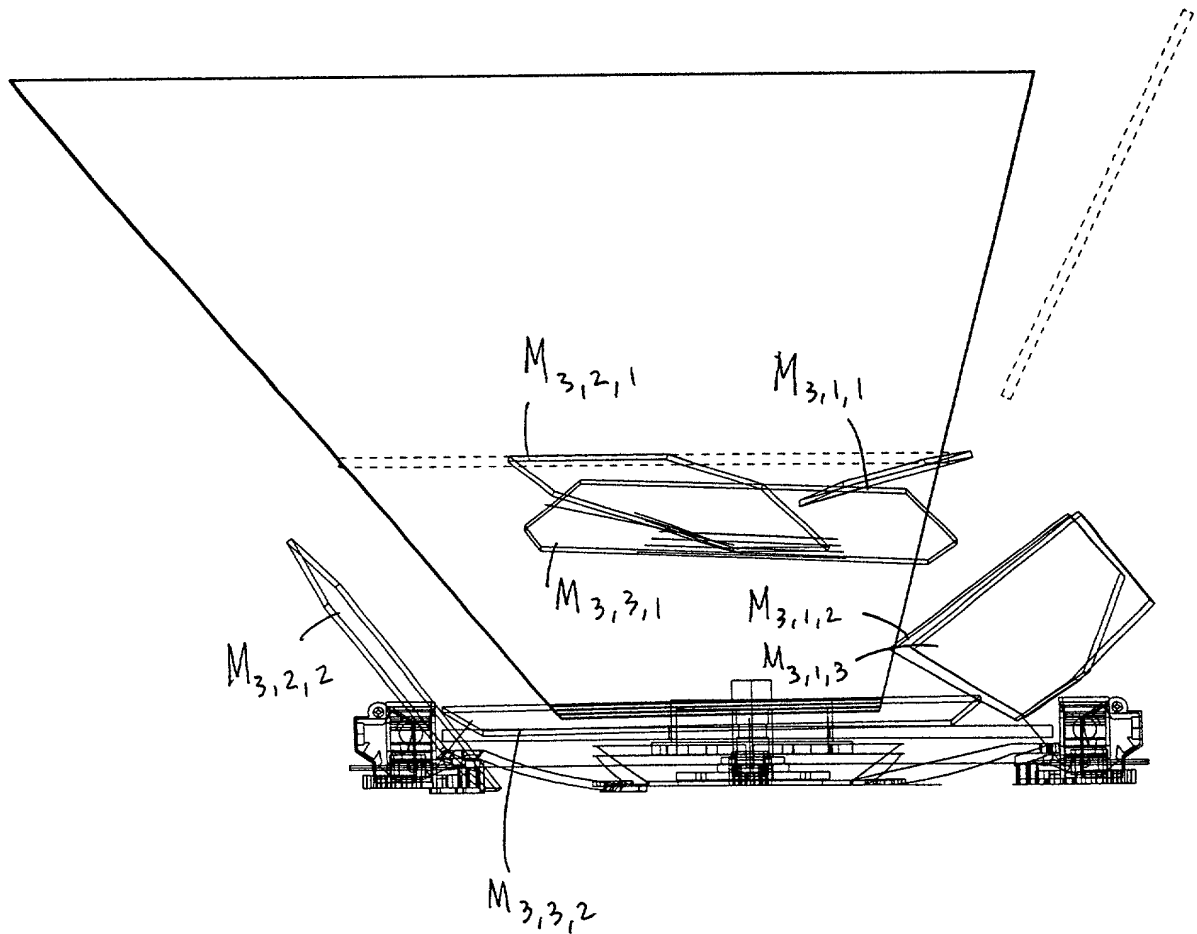


FIG. 5P4

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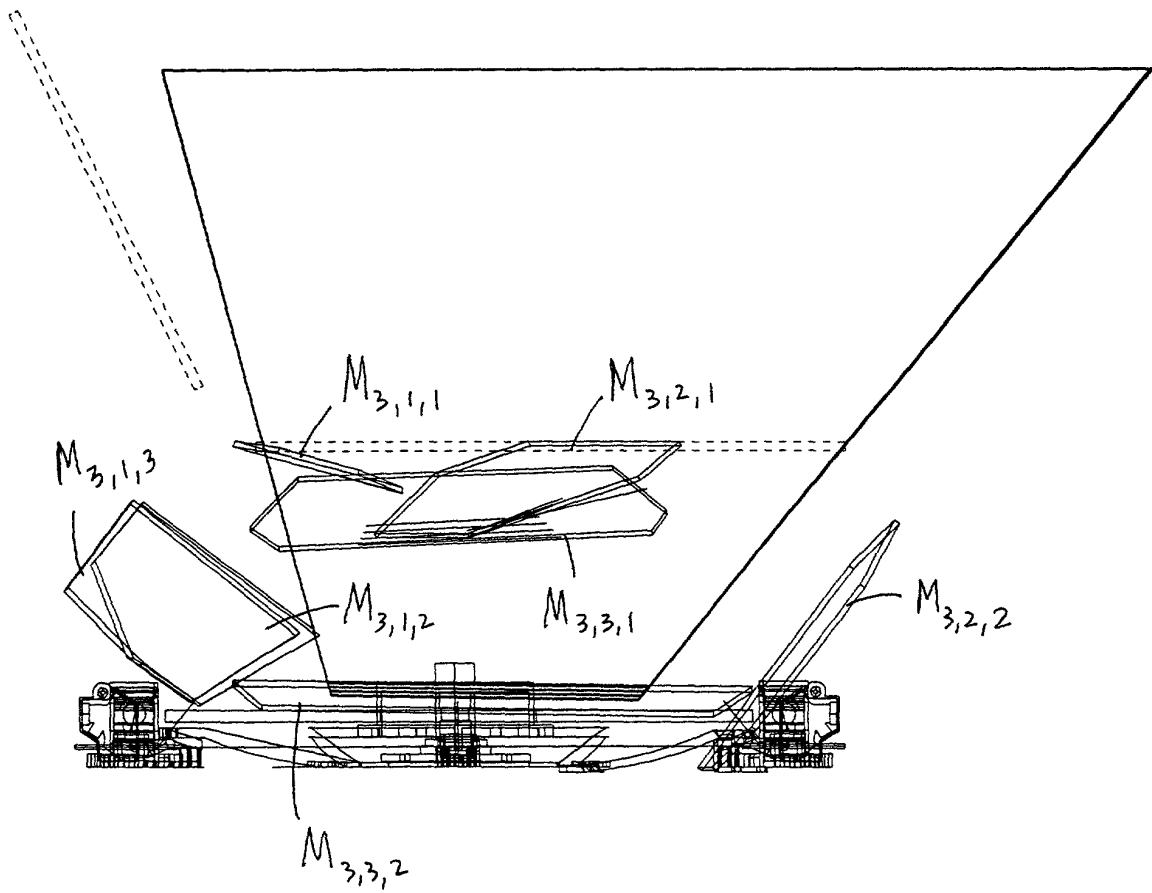


FIG. 5P5

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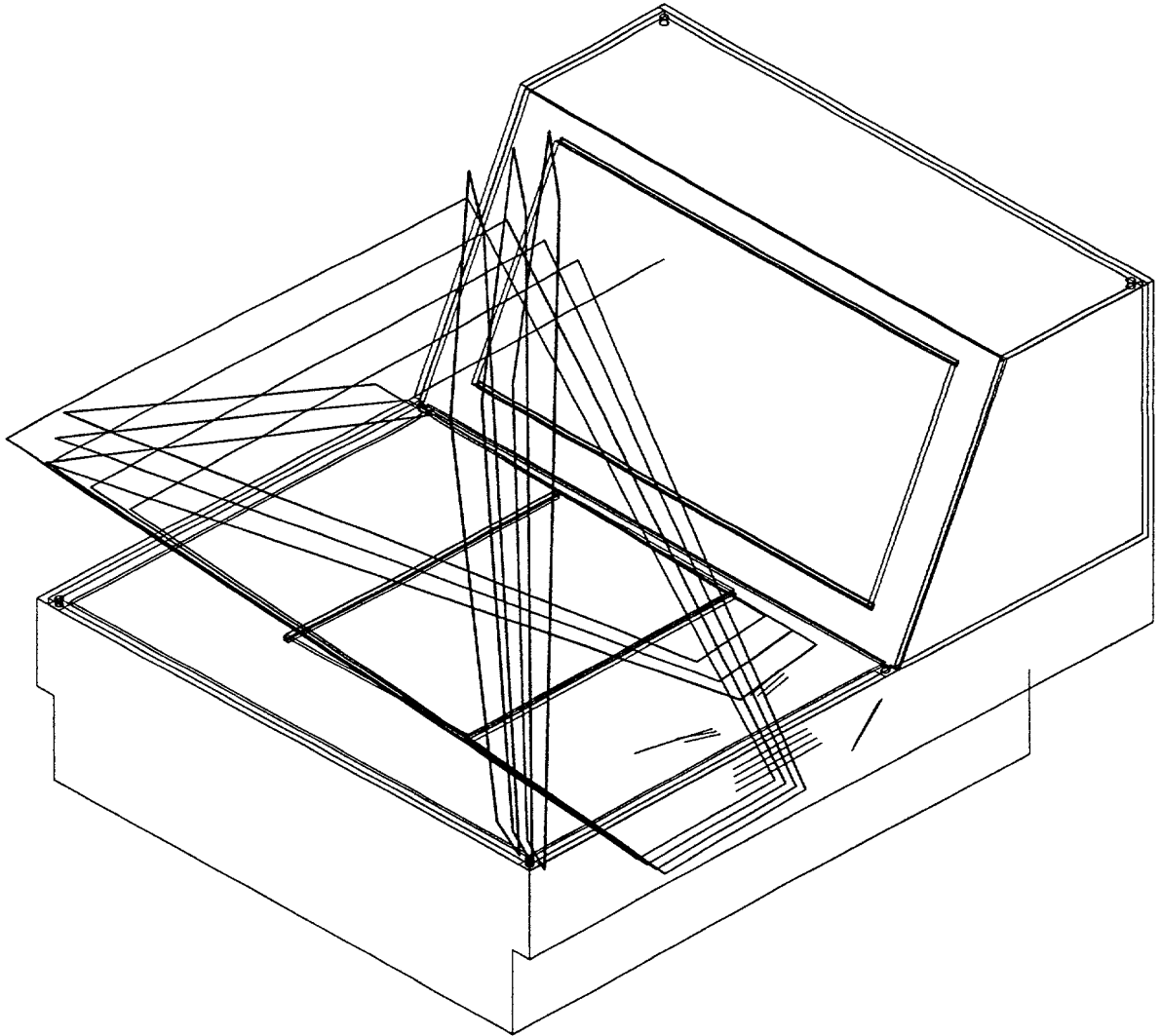


FIG. 5Q1

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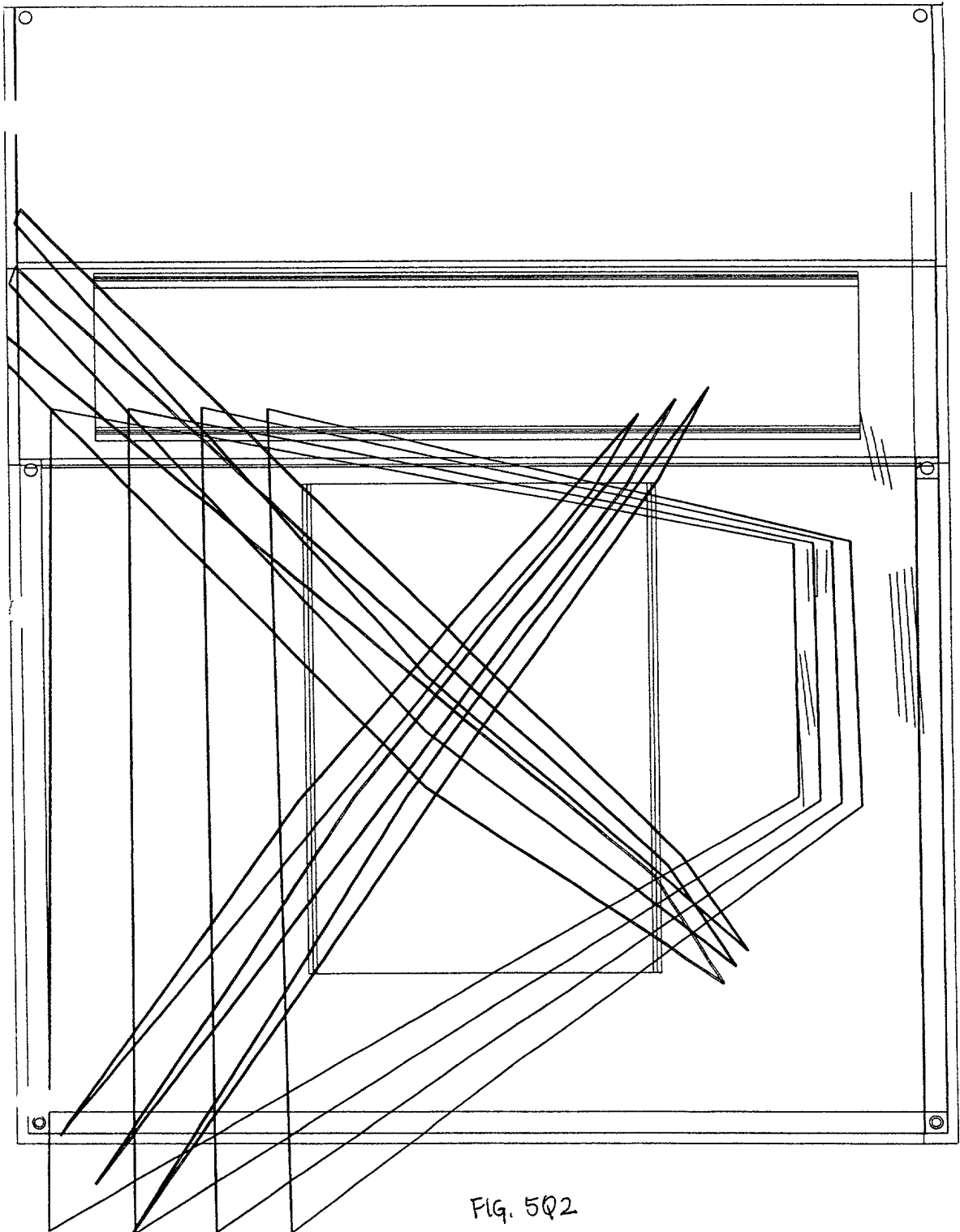


FIG. 5Q2

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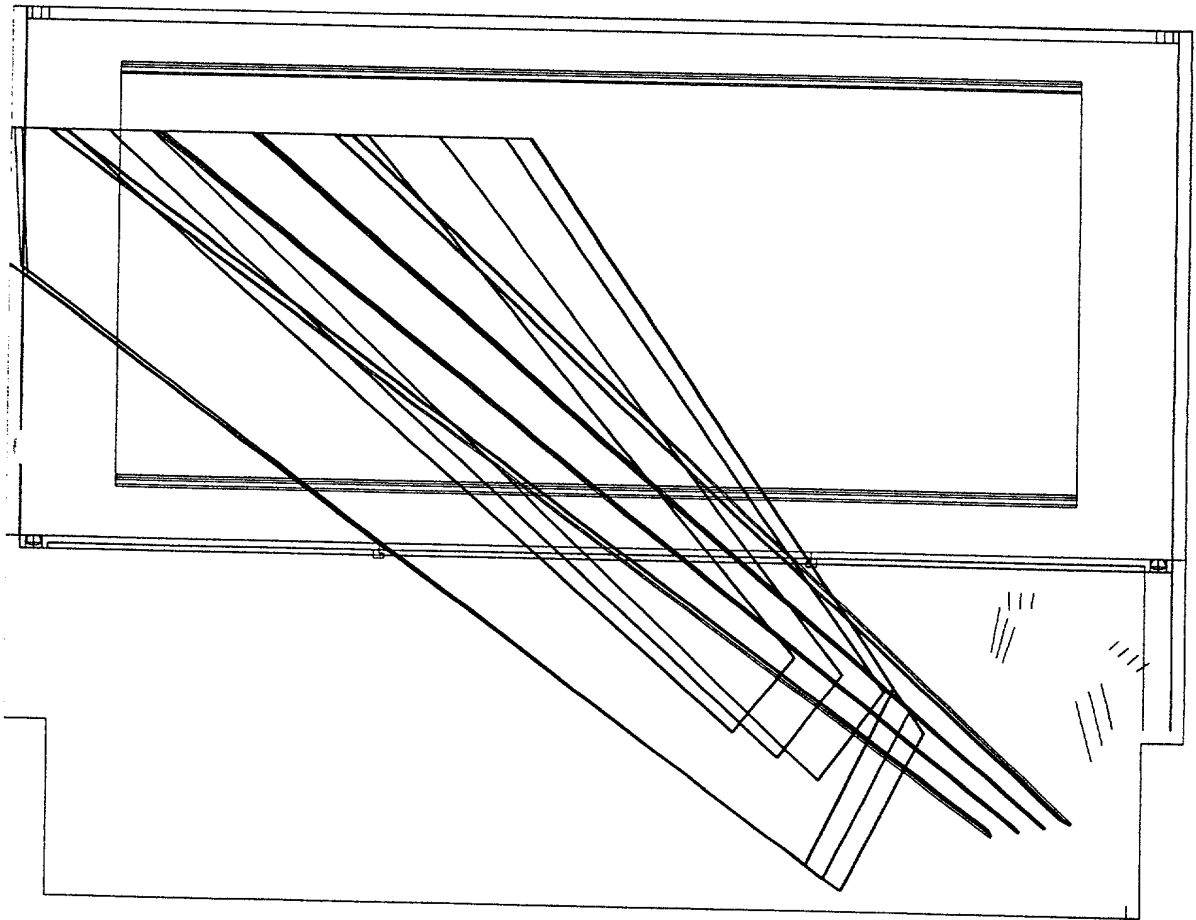


FIG. 5 Q3

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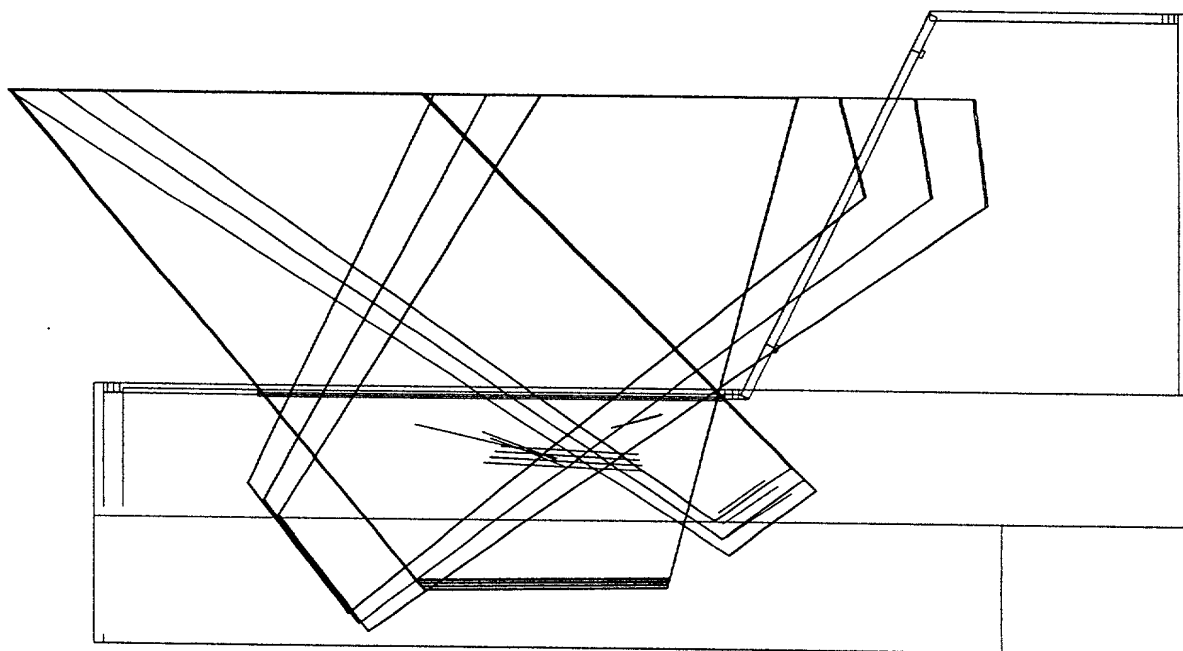


FIG. 5Q4

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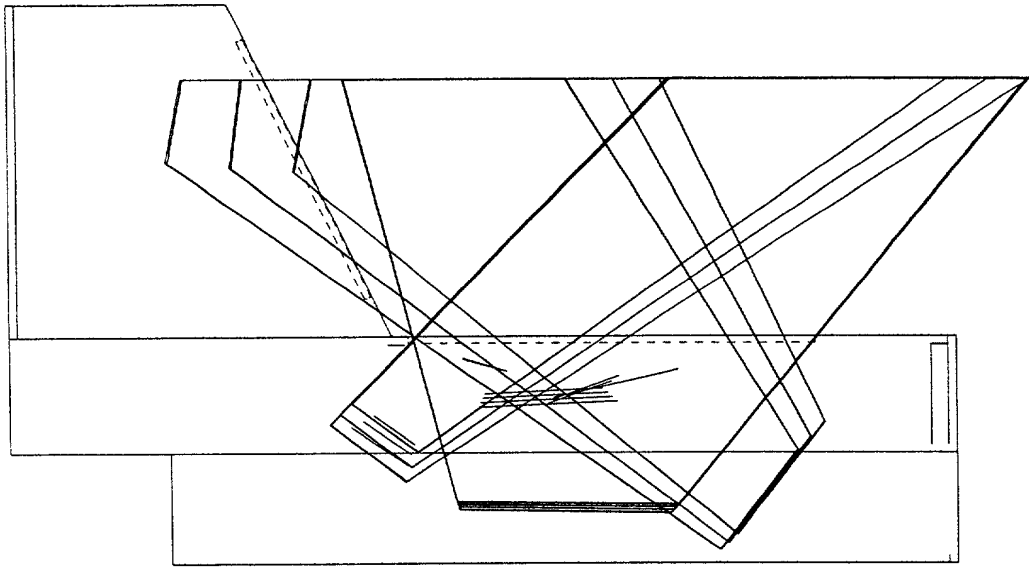


FIG. 5Q5

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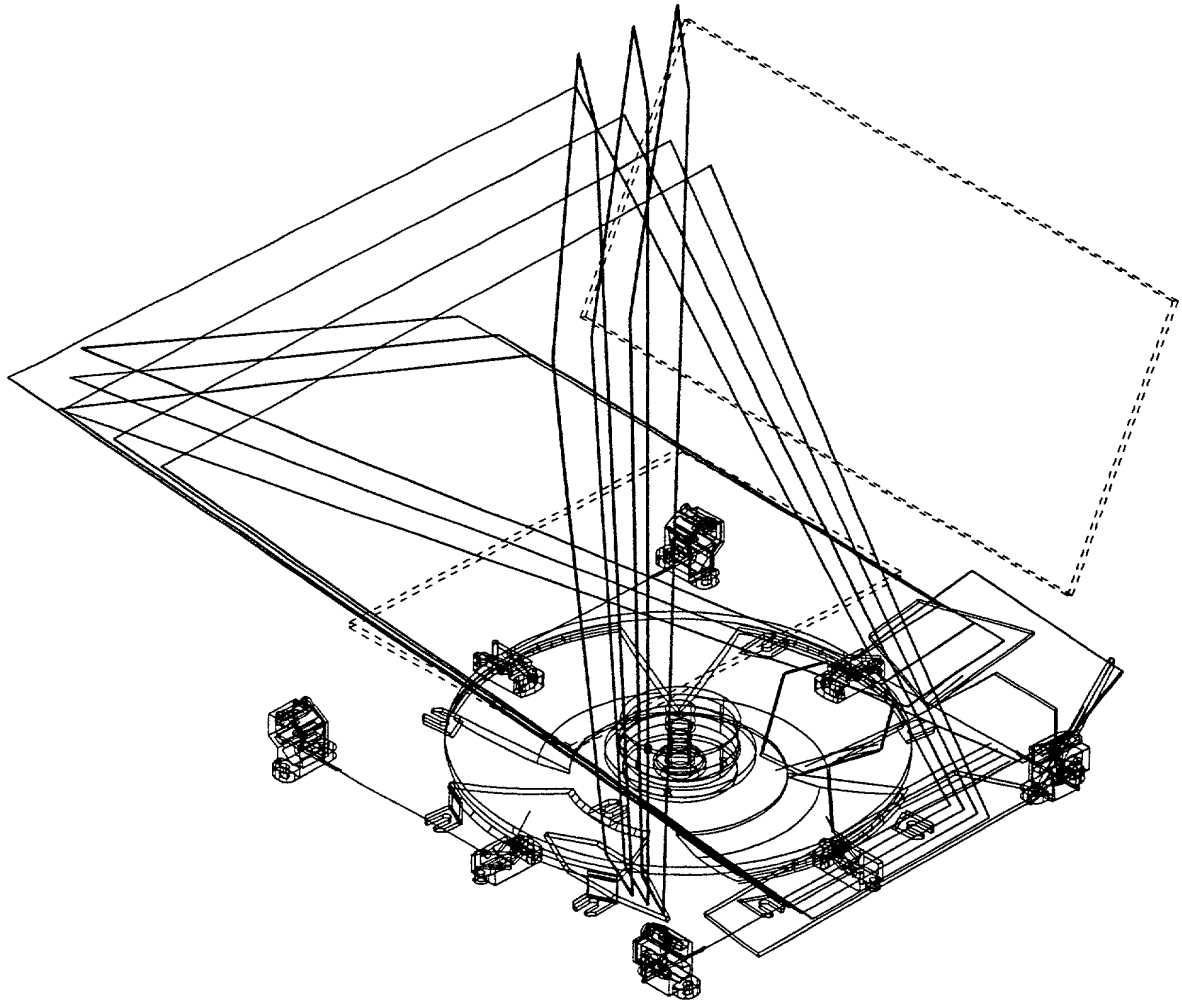


FIG. 5R1

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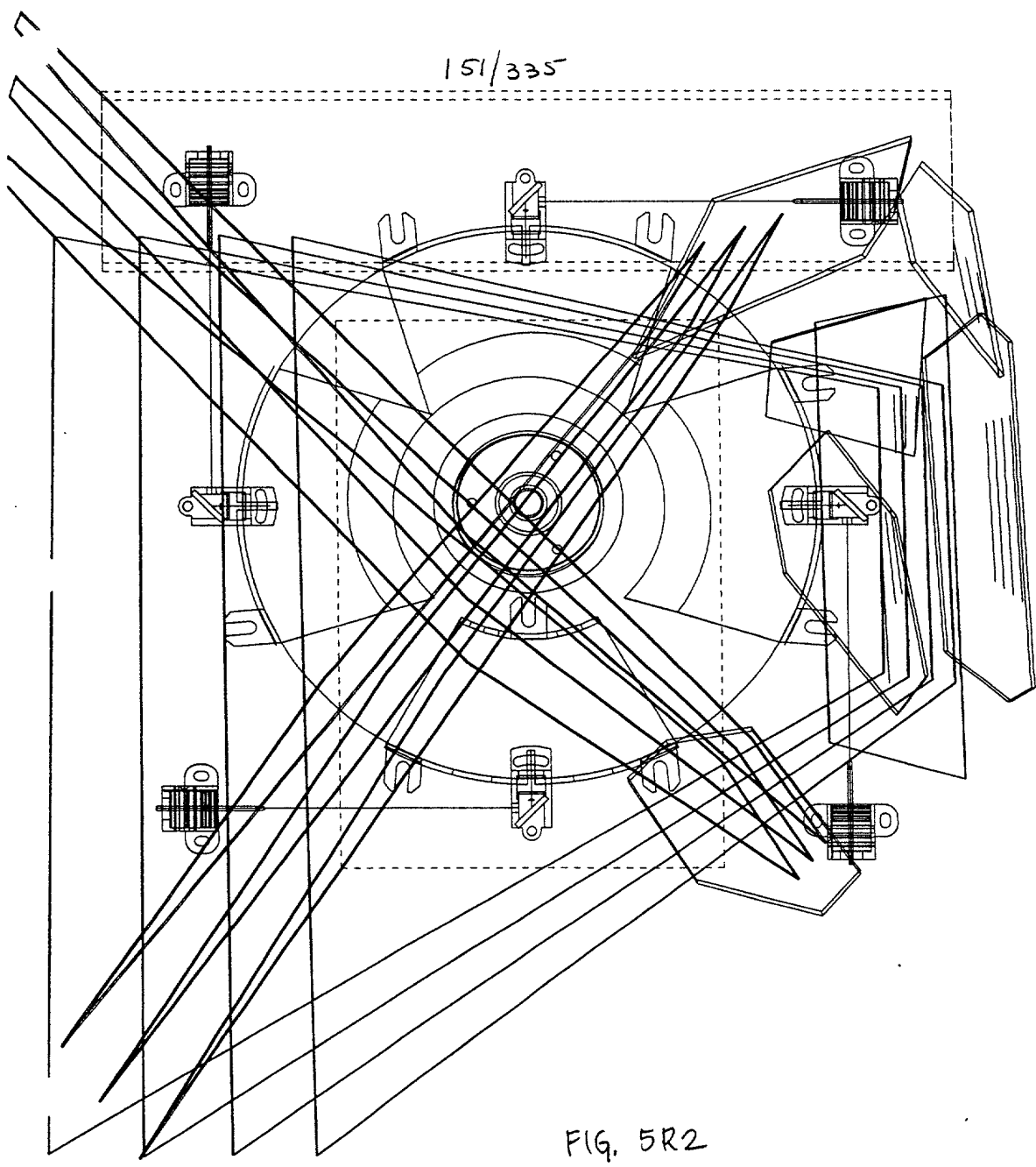


FIG. 5R2

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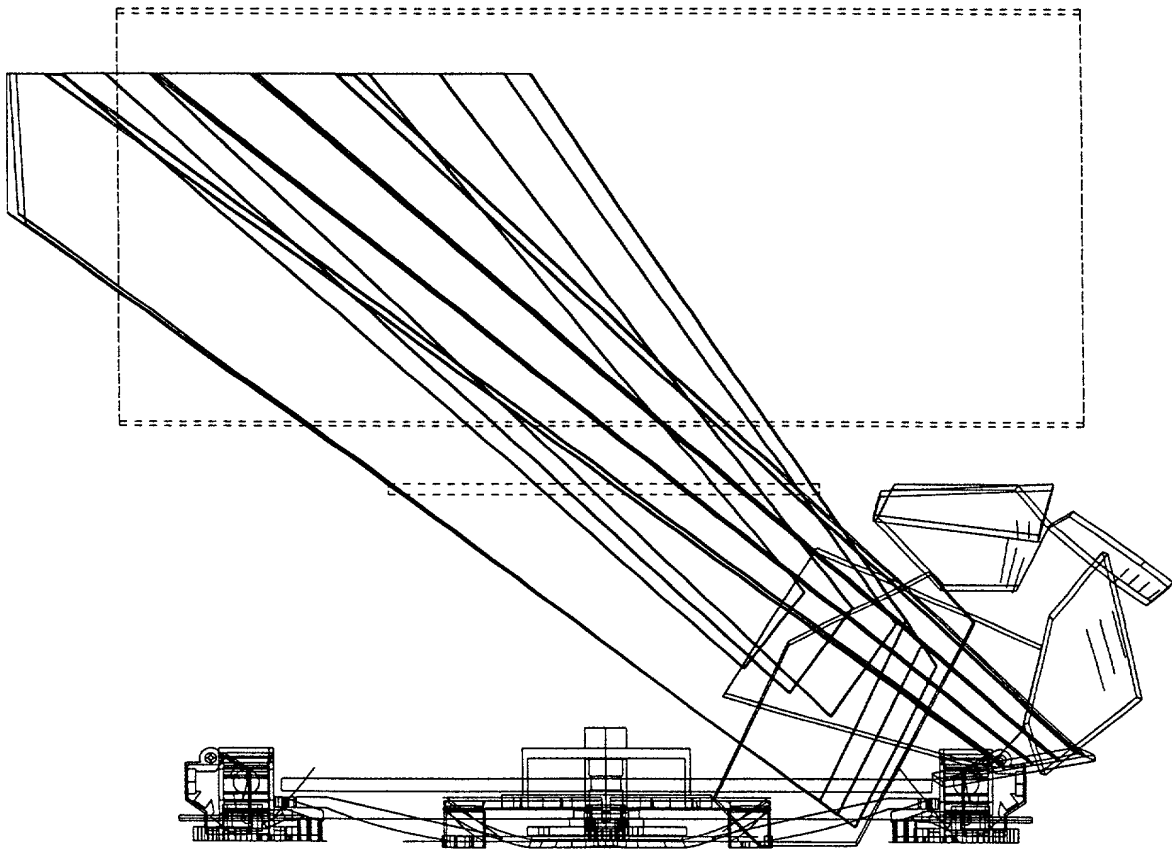


FIG. 5R3

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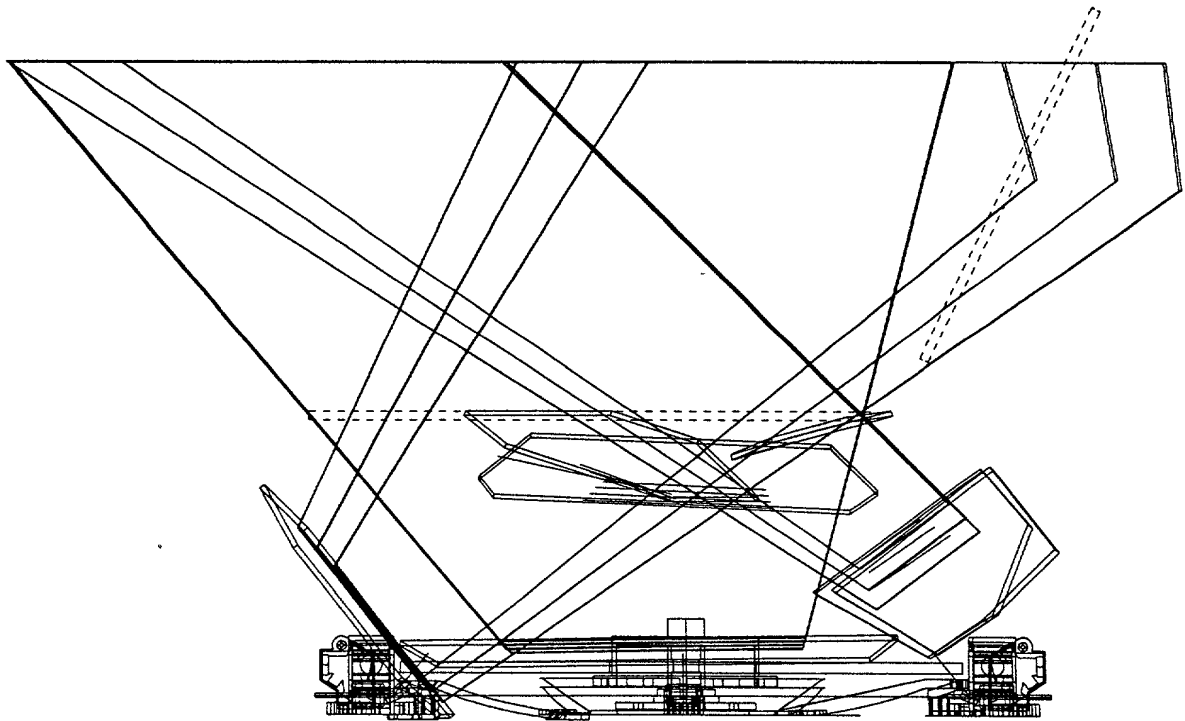


FIG. 5R4

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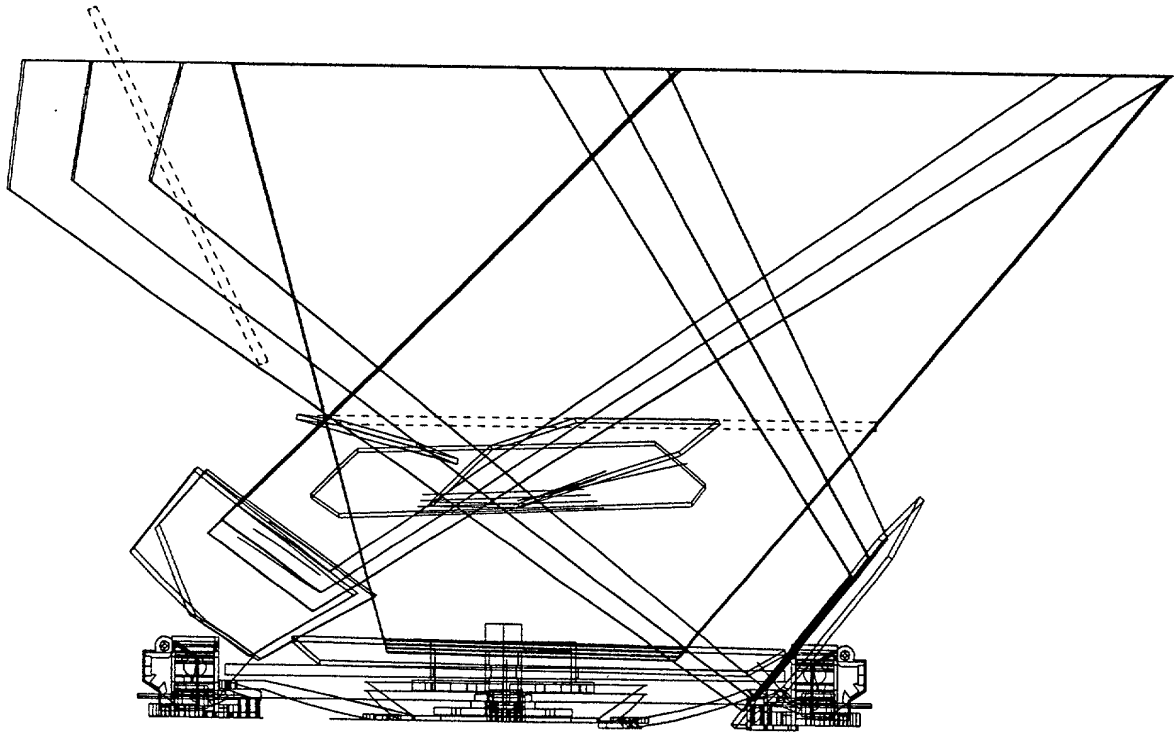


FIG. 5R5

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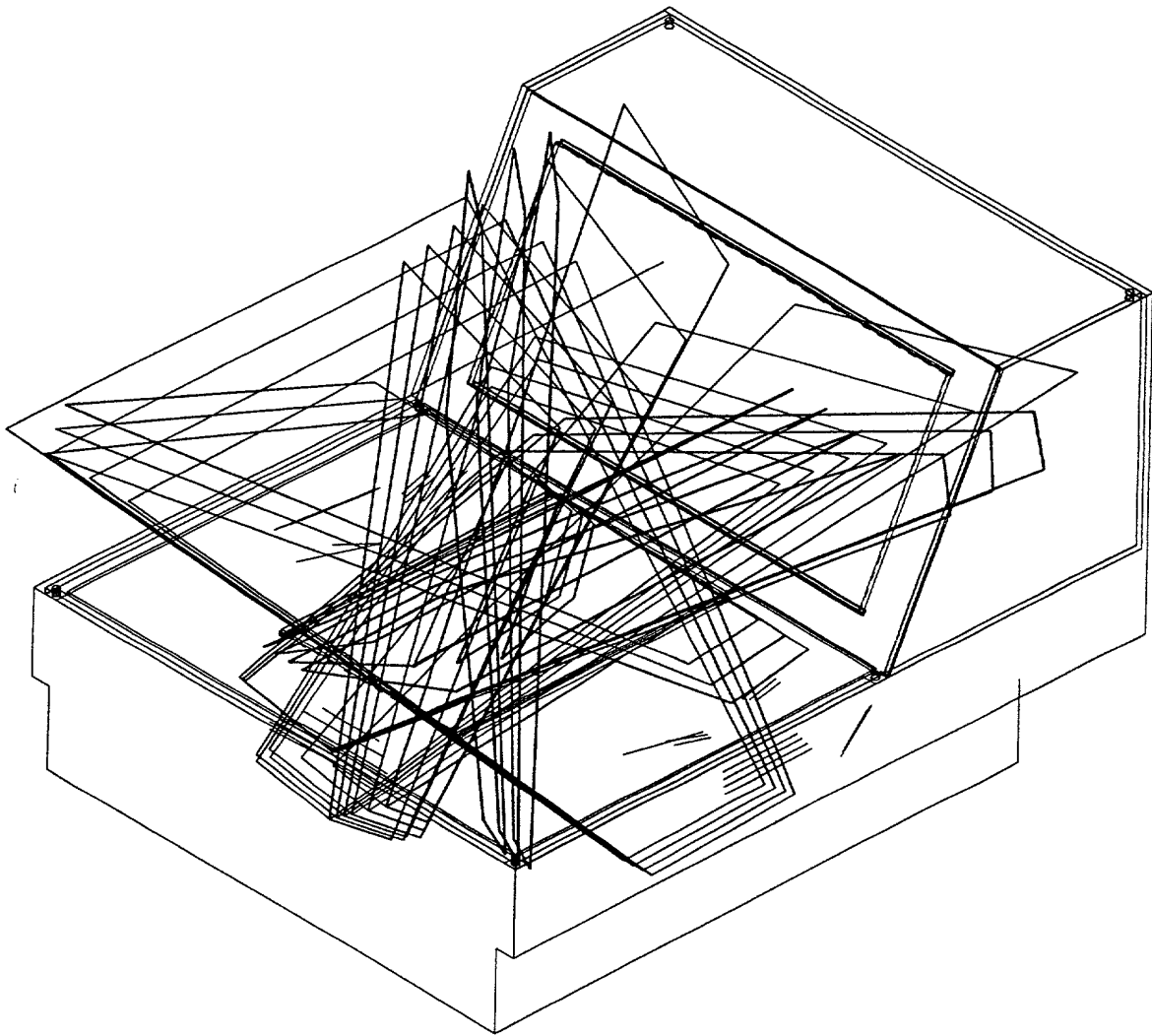


FIG. 5B1

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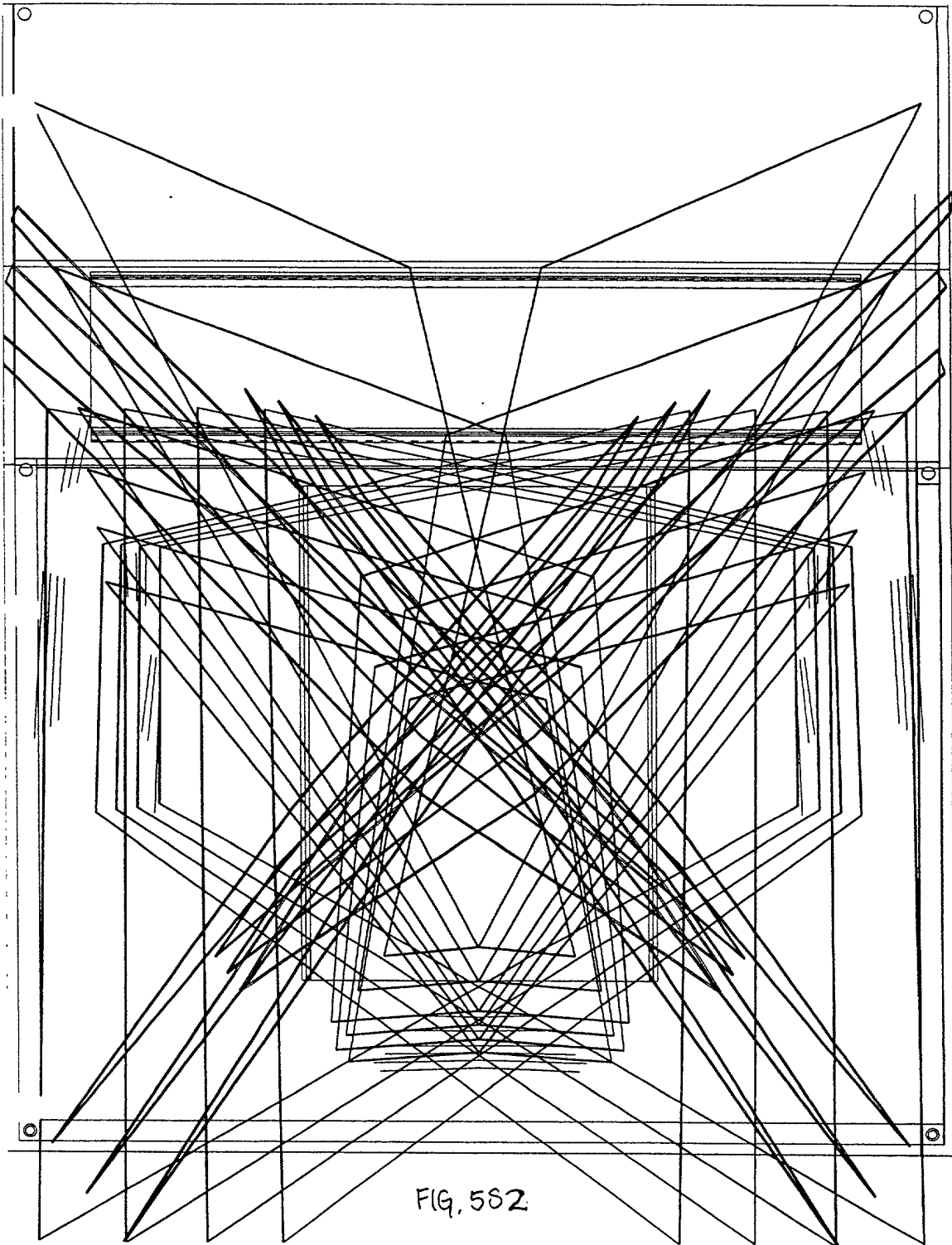


FIG. 582

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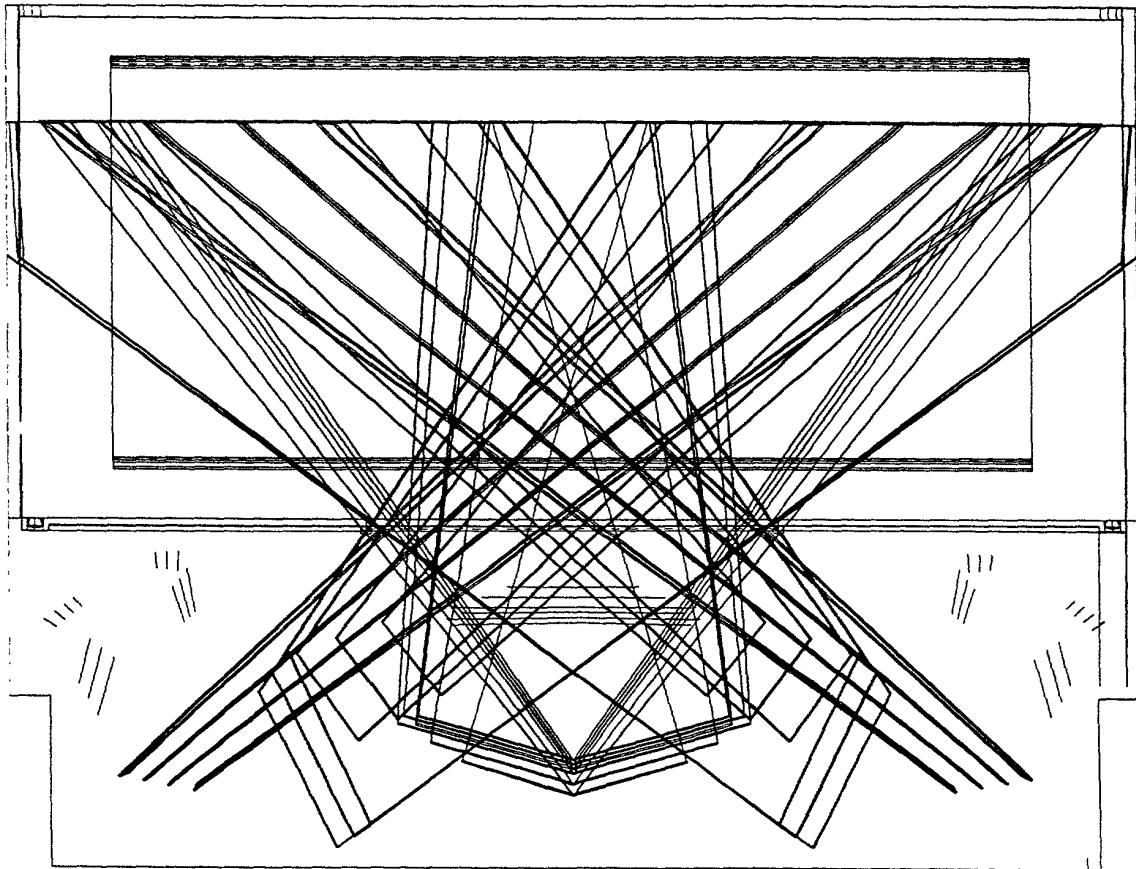


FIG. 553

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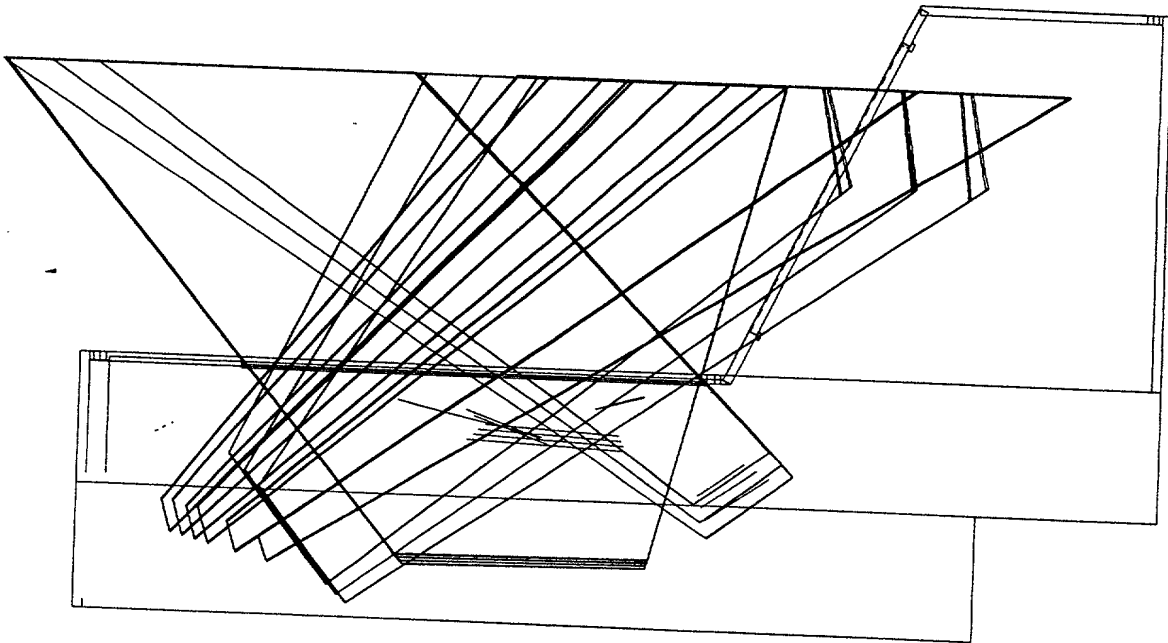


FIG. 584

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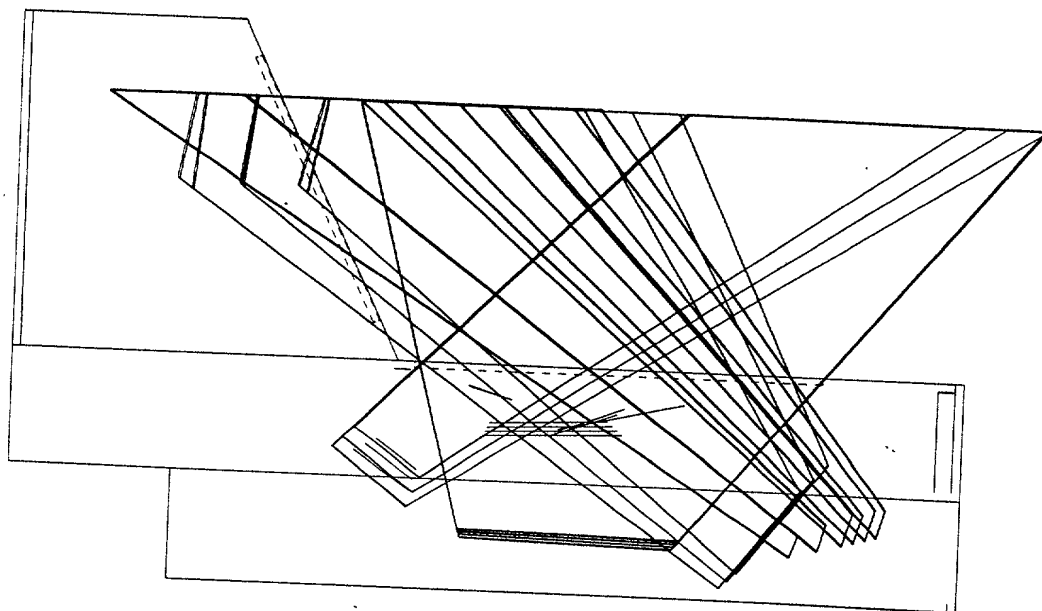


FIG. 585

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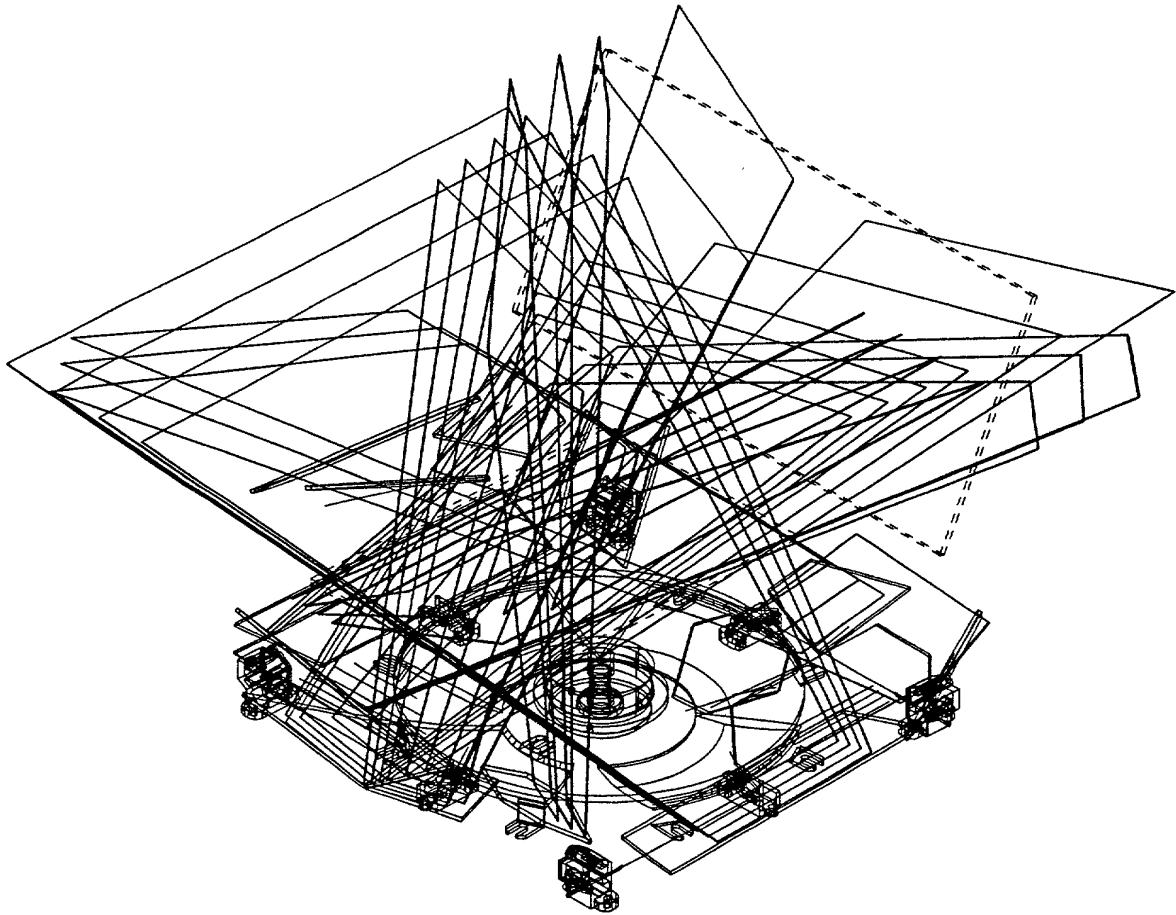


FIG. 5T1

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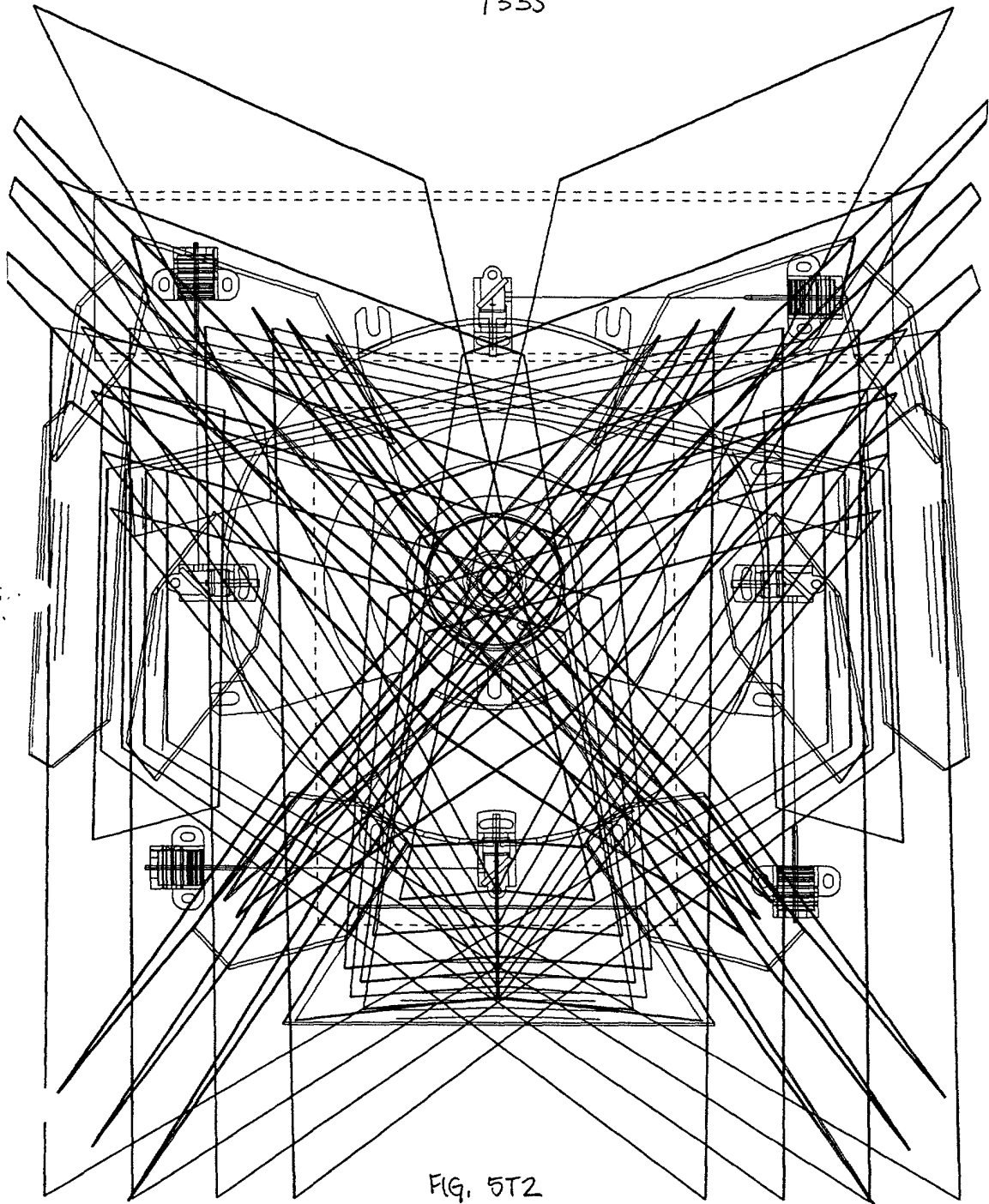


FIG. 5T2

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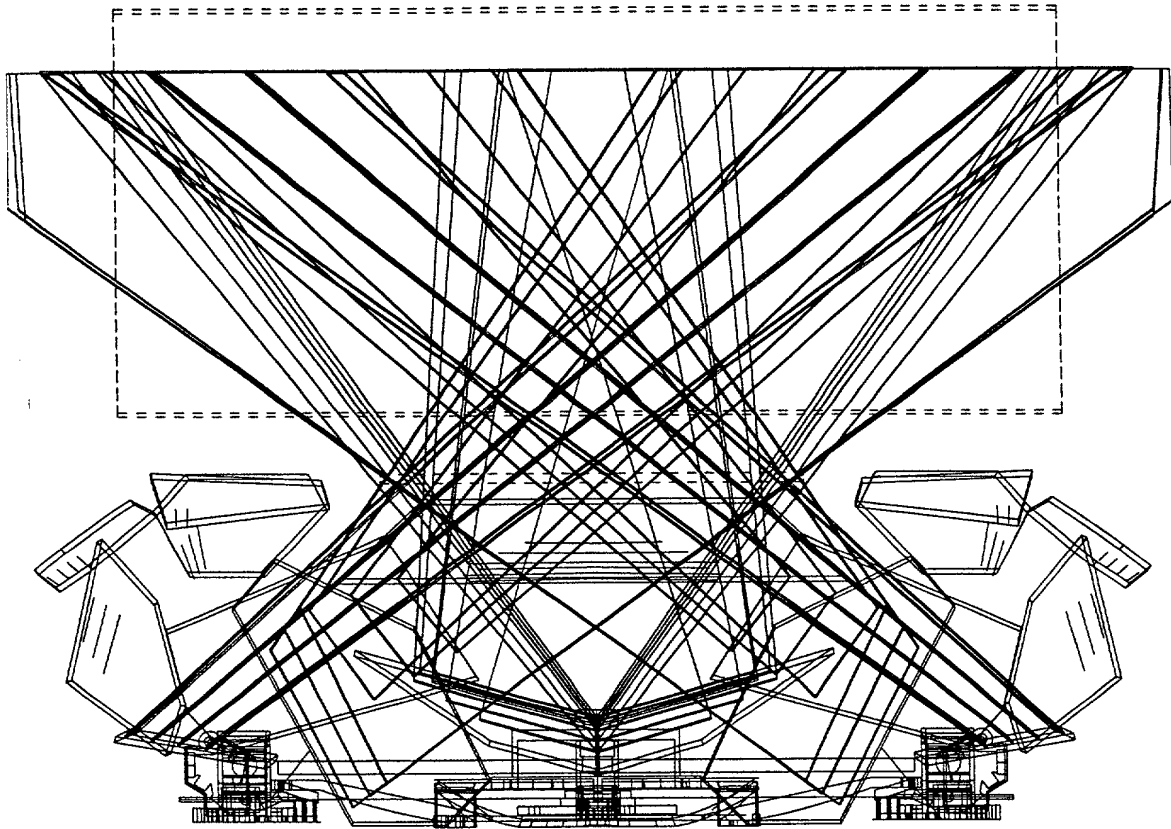


FIG. 5T3

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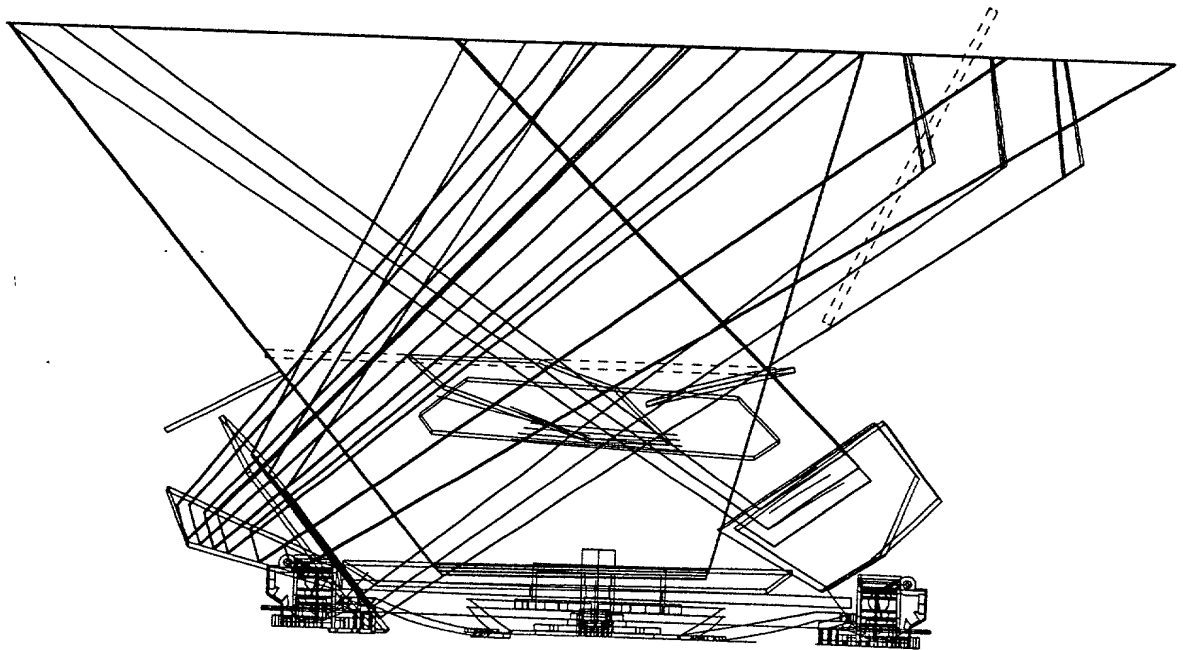


FIG. 5T4

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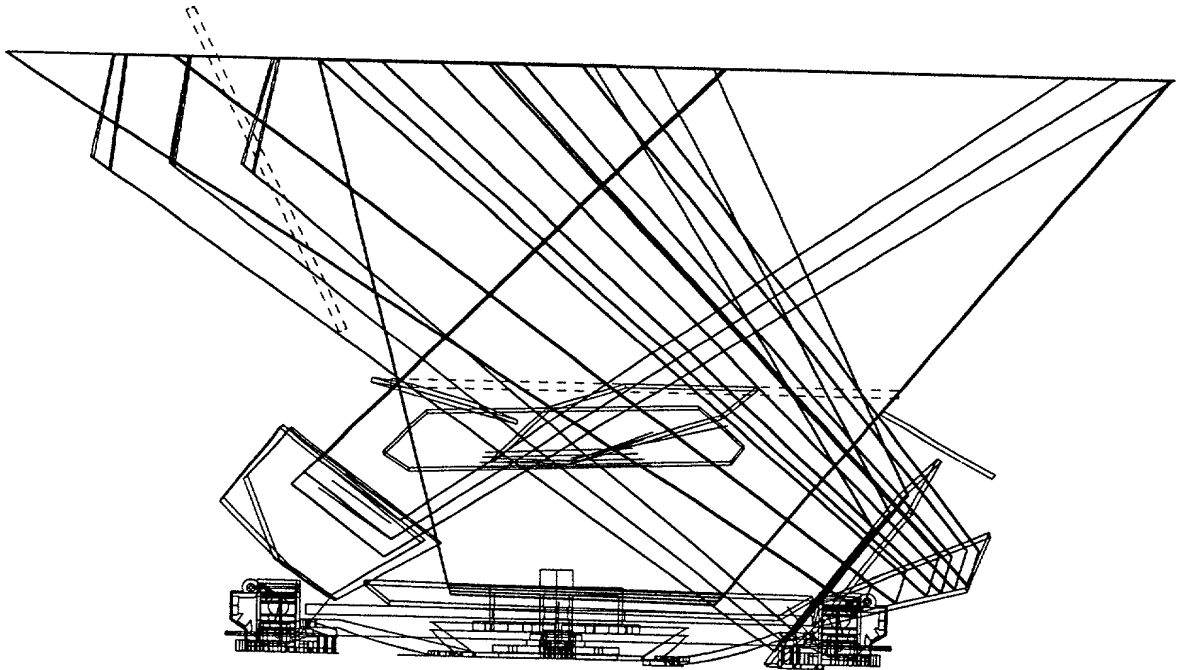


FIG. 5T5

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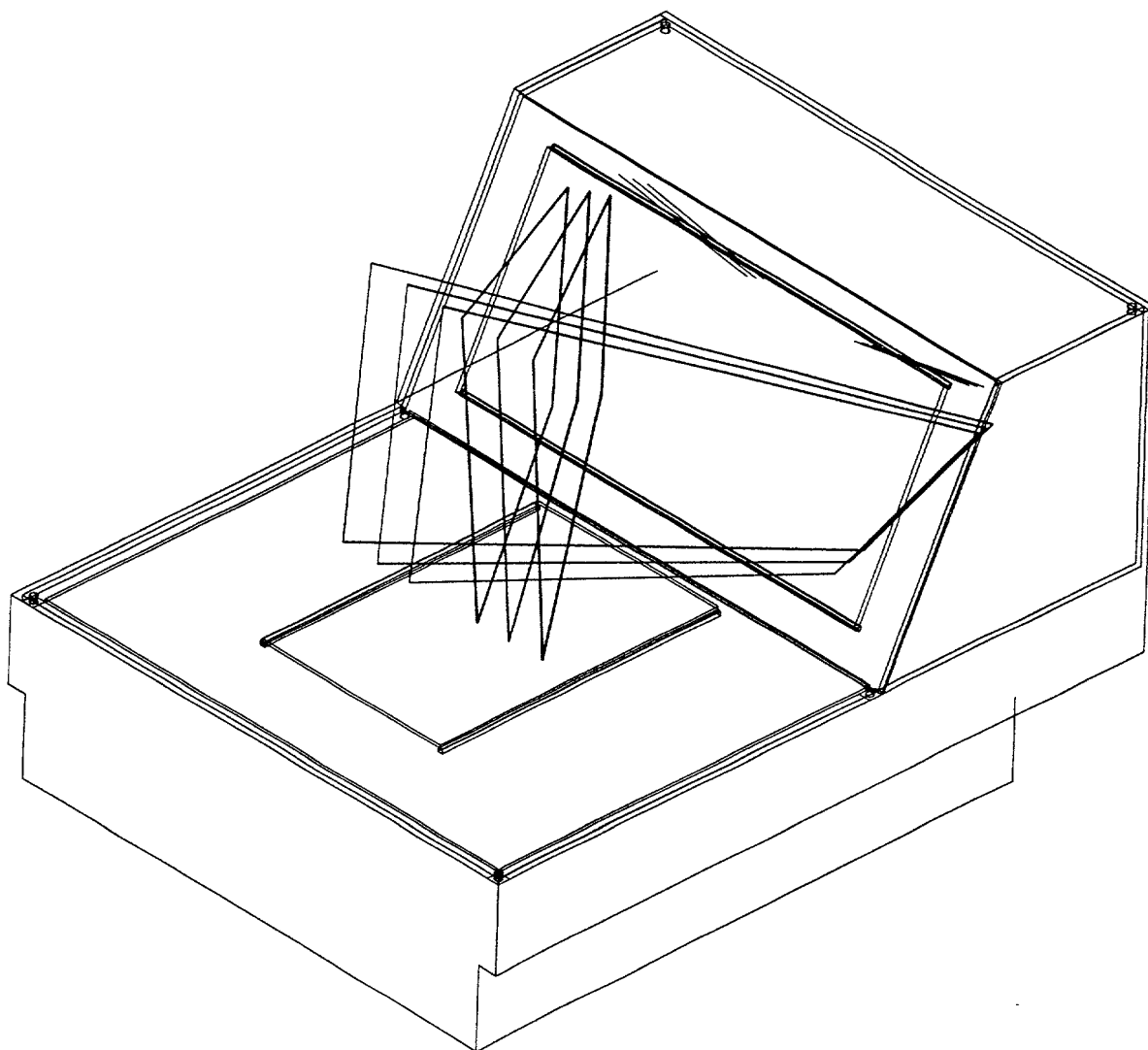


FIG. 5 U1

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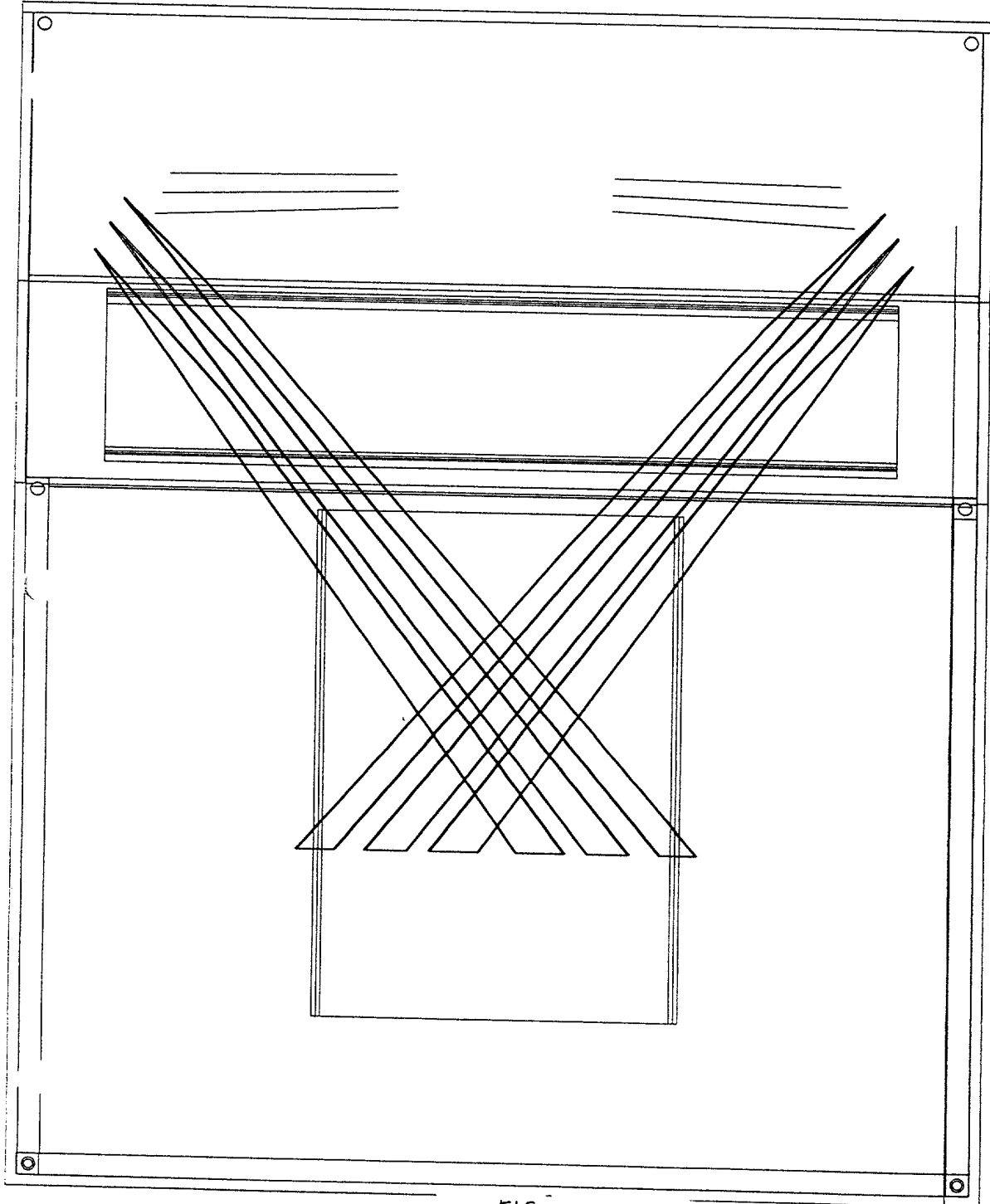


FIG. 5V2

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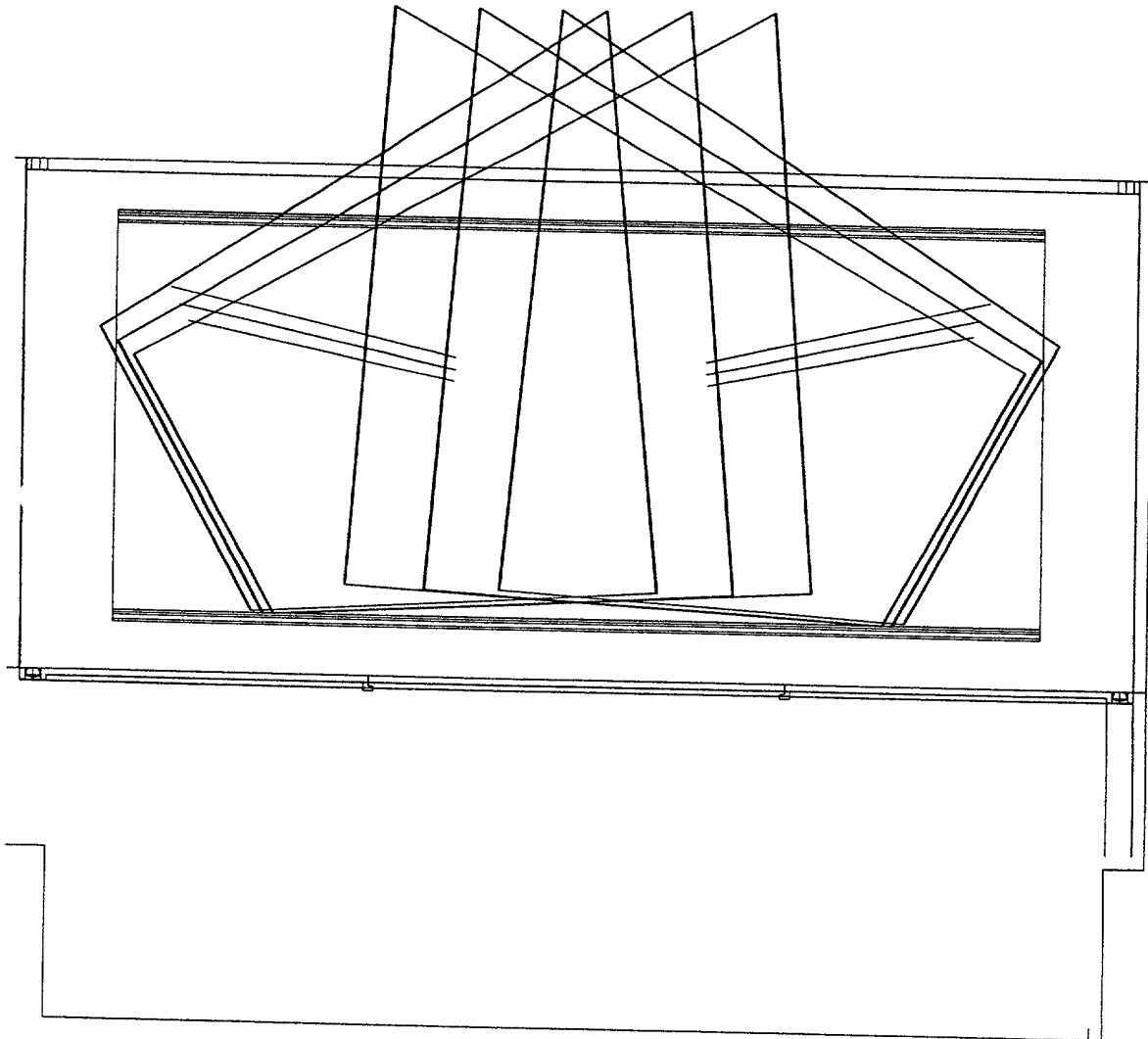


FIG. 5V3

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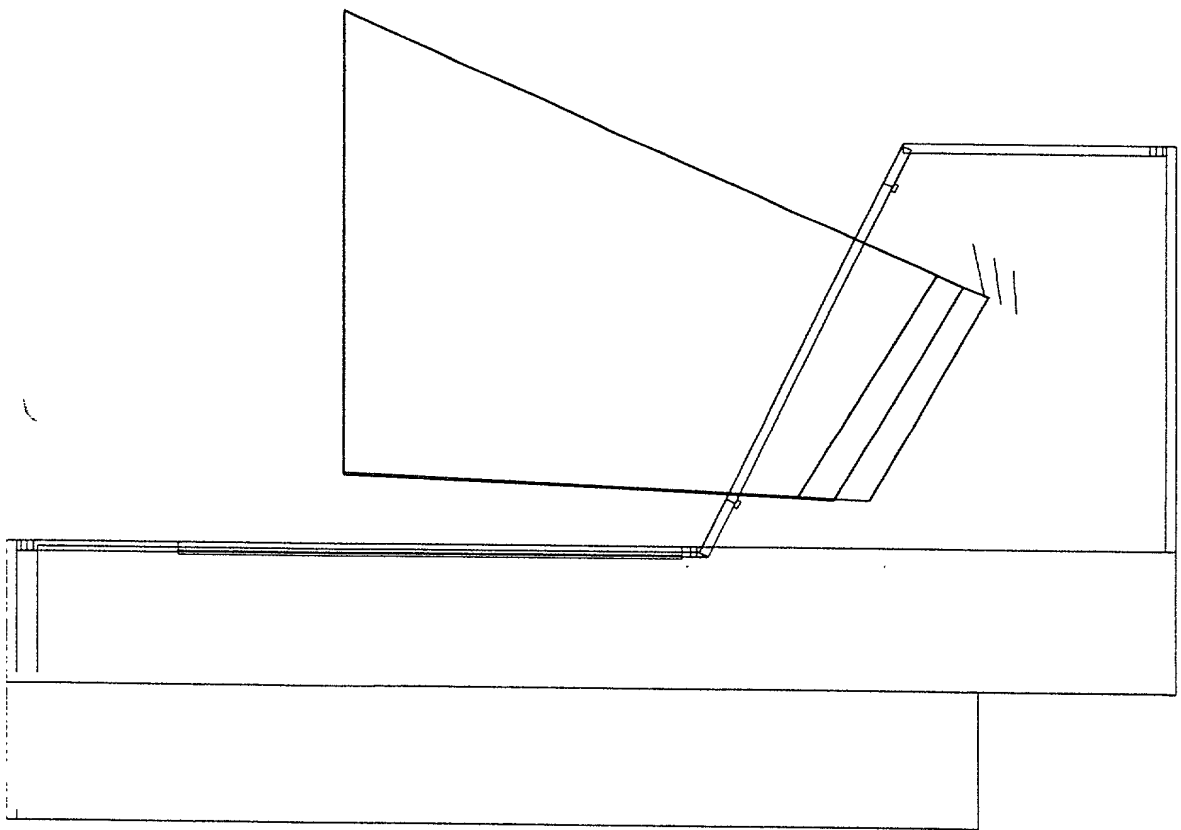


FIG. 504

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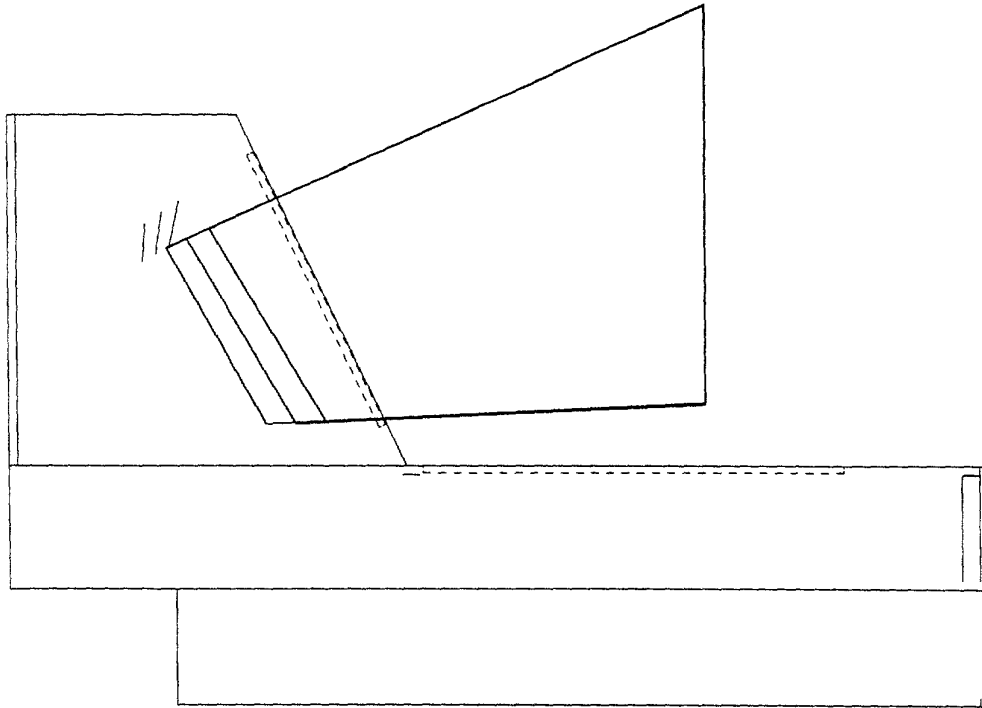


FIG. 5U5

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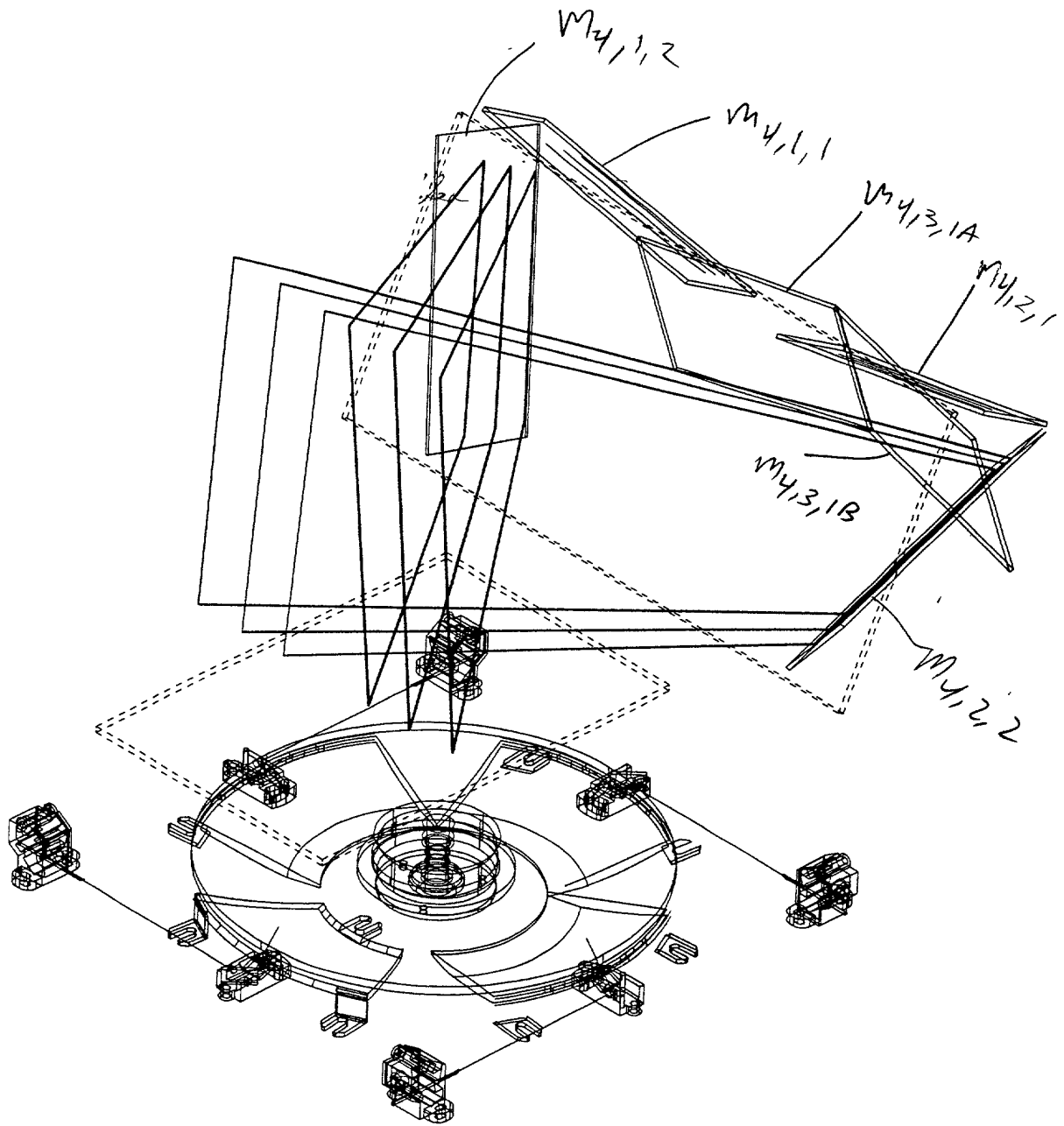


FIG. 5V1

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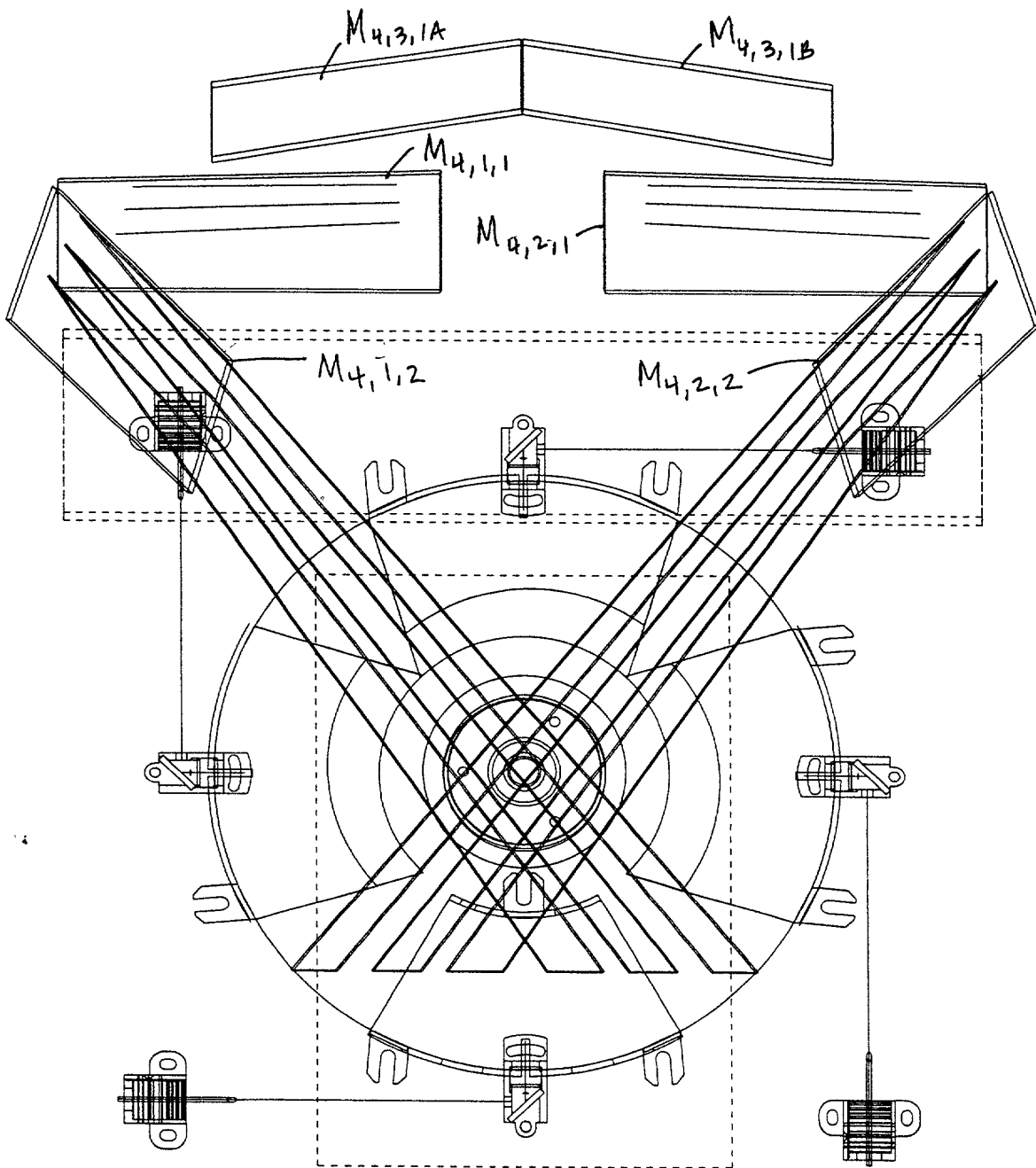


FIG. 5V2

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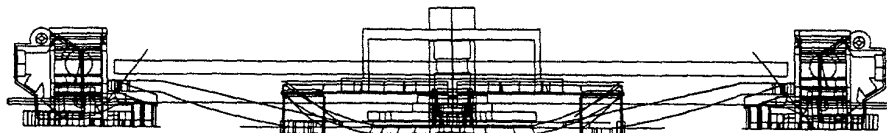
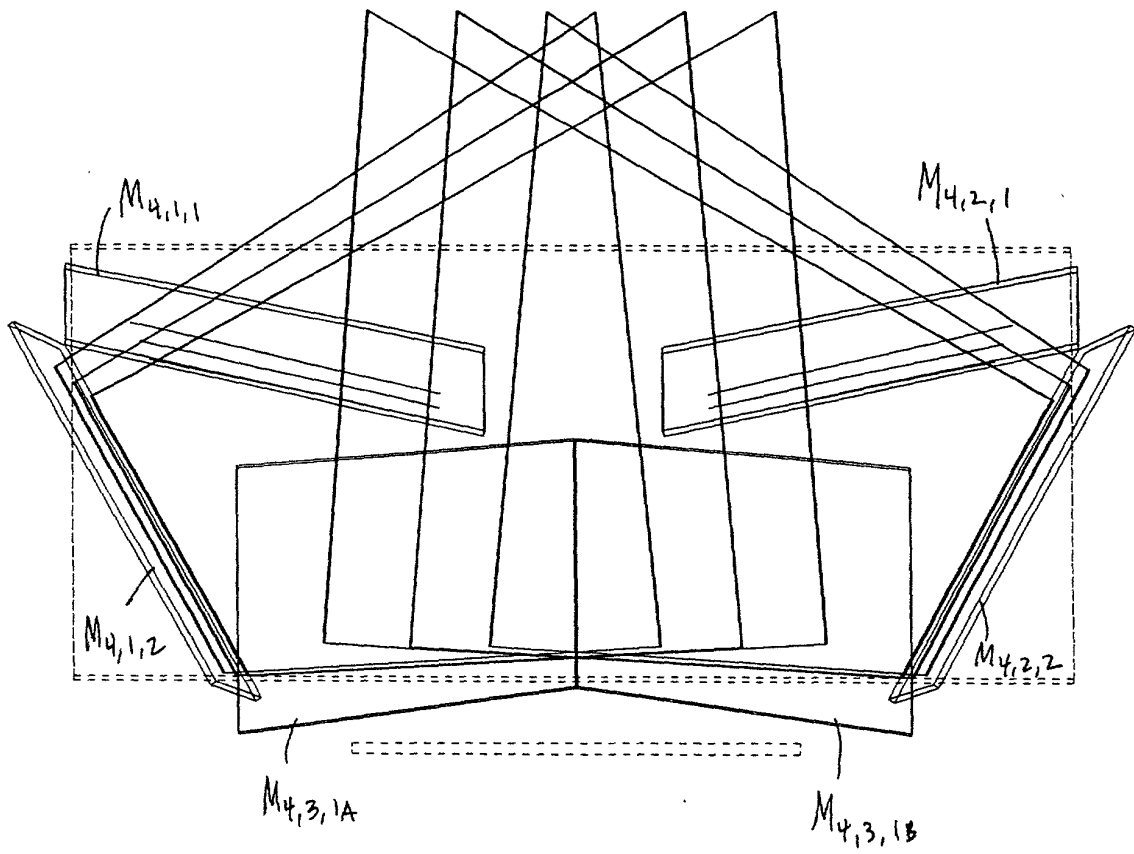


FIG. 5V3

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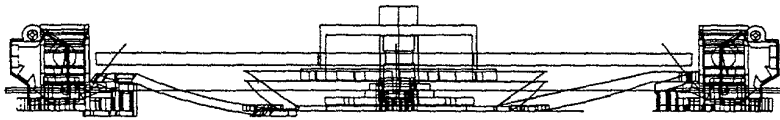
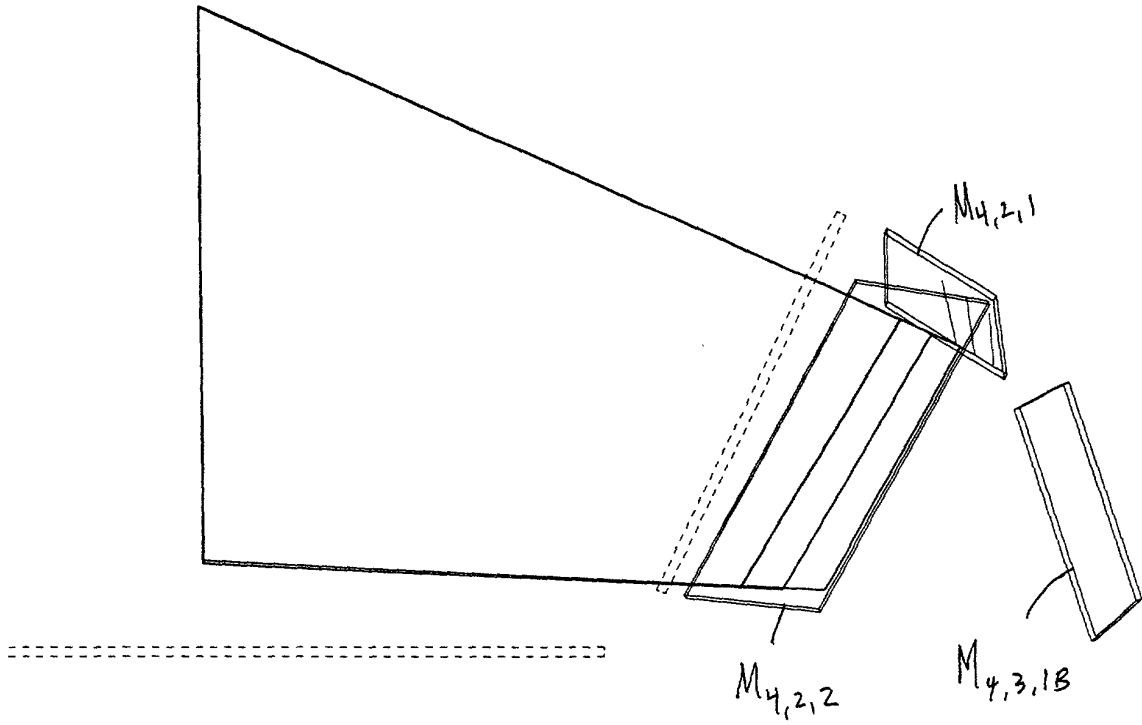


FIG. 5Y4

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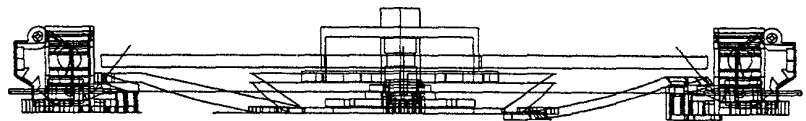
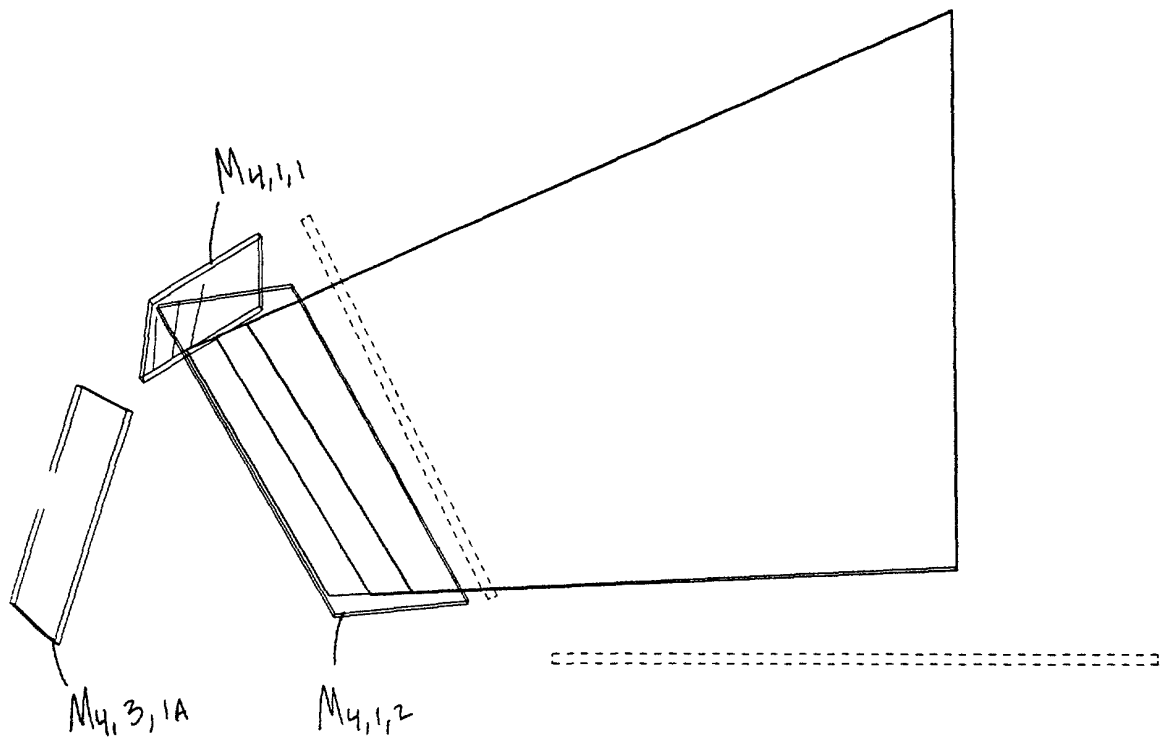


FIG. 5V5

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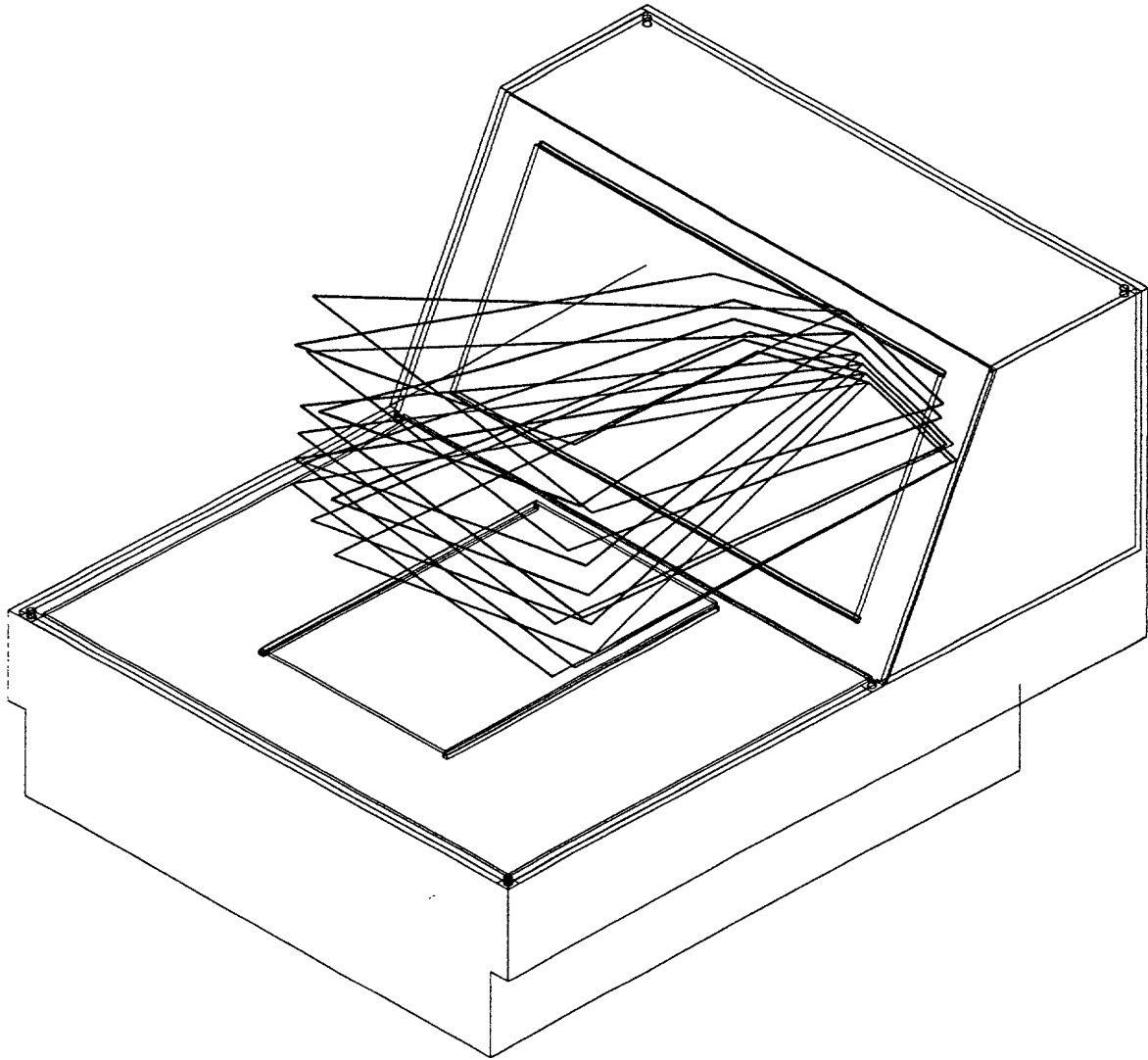


FIG. 5W1

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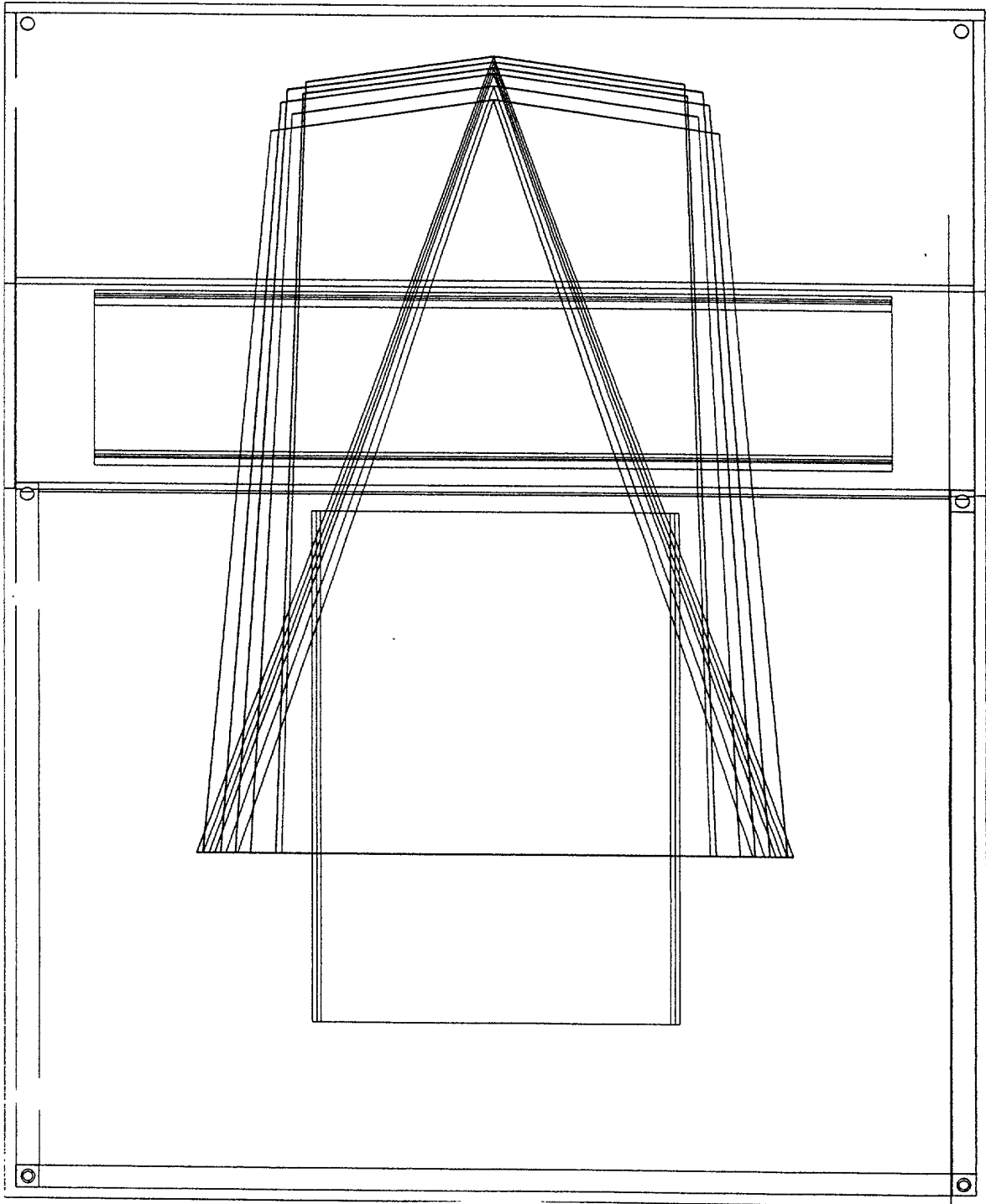


FIG. 5N2

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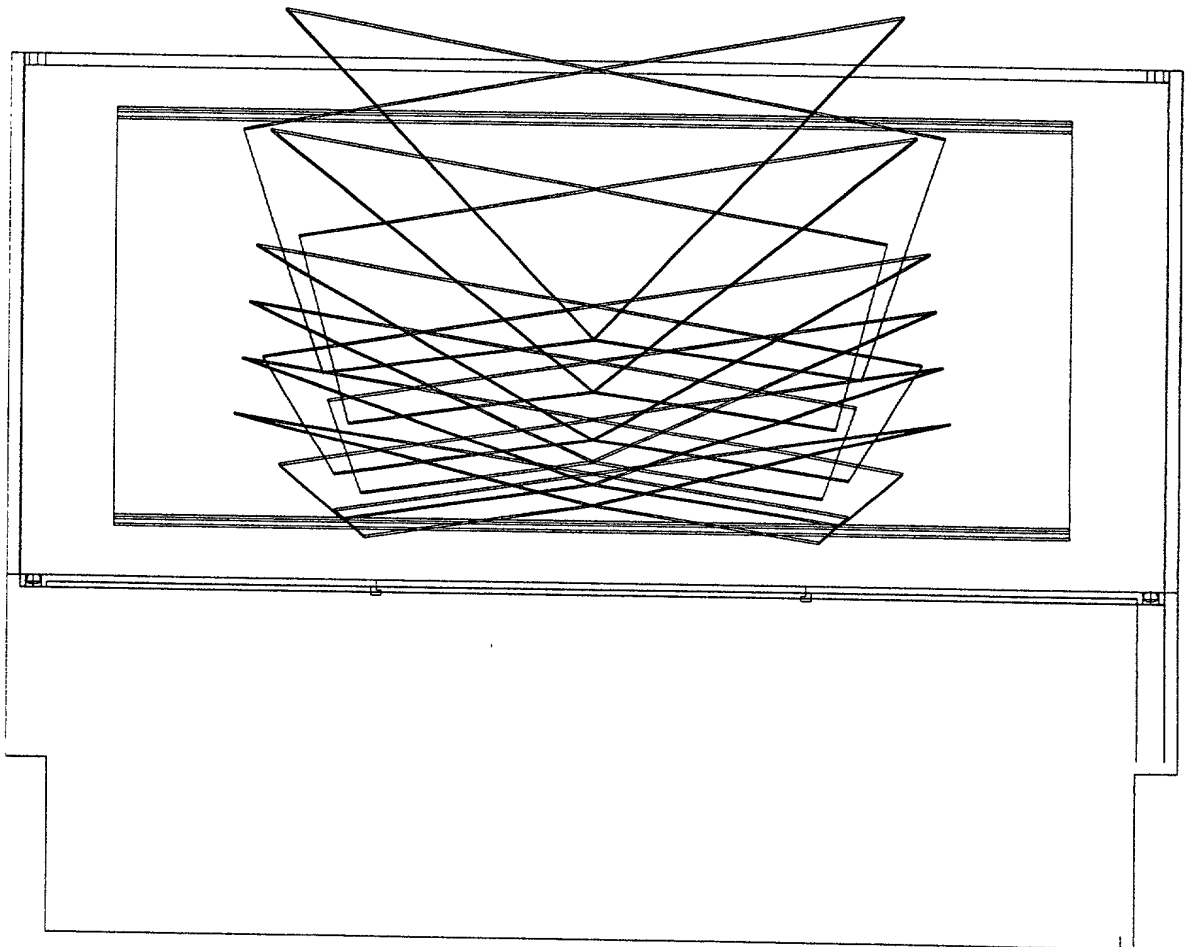


FIG. 5N3

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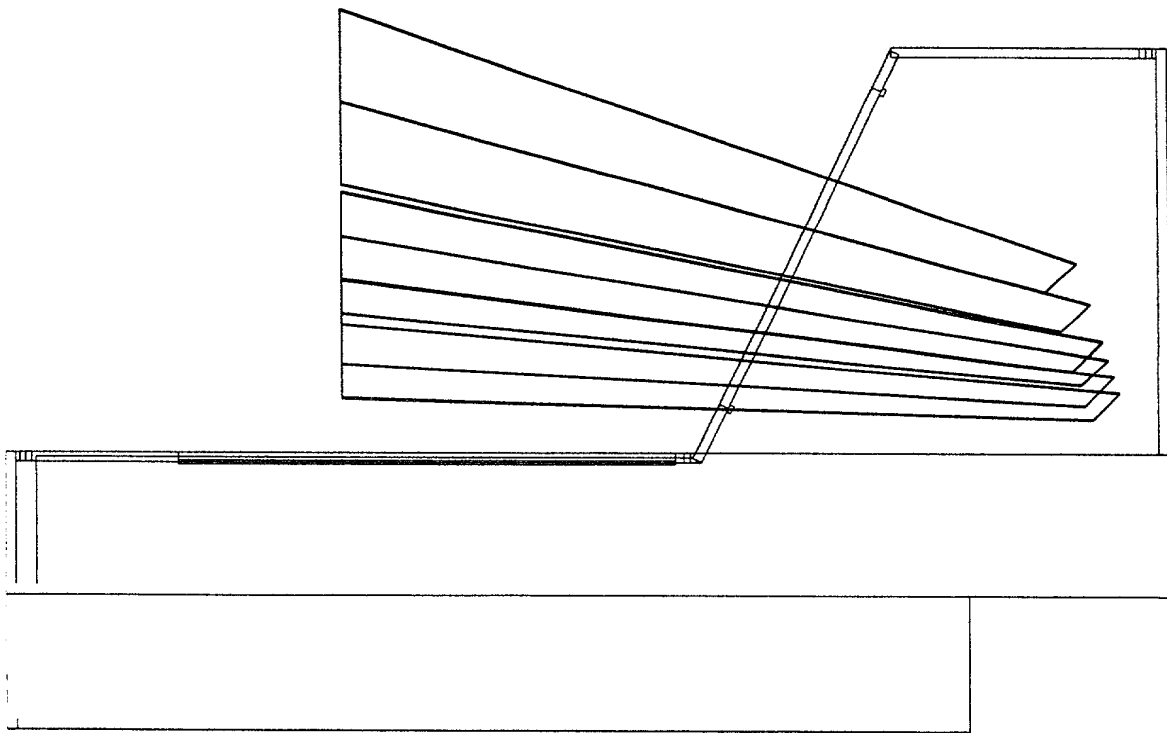


FIG. 5W4

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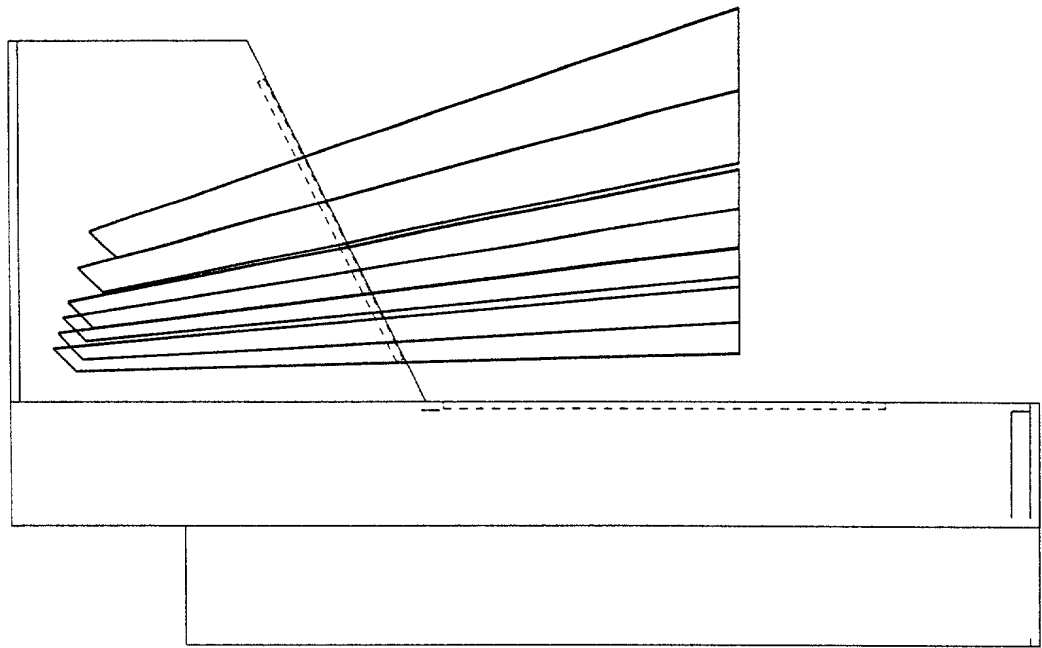


FIG. 5N5

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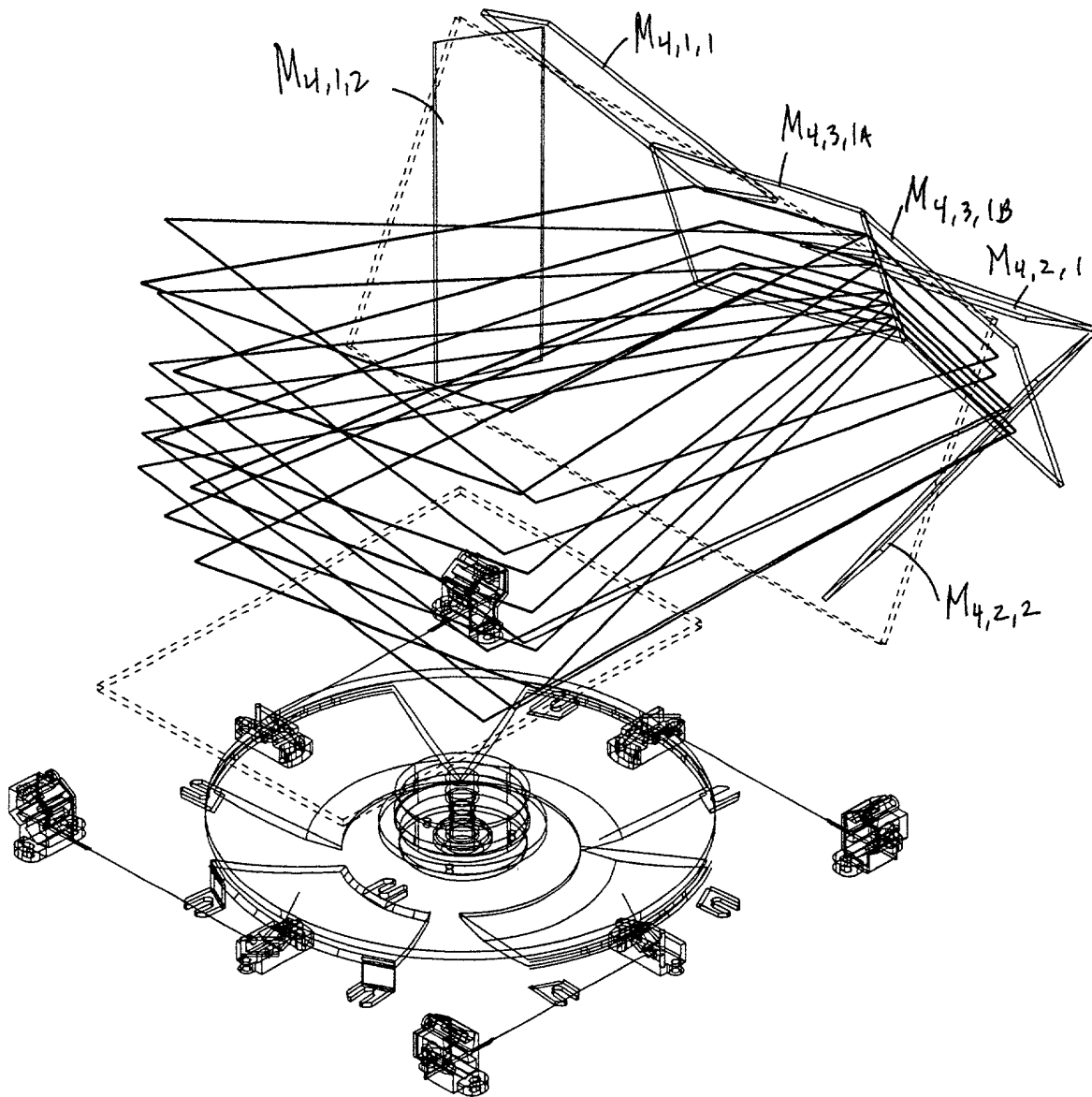


FIG. 5X1

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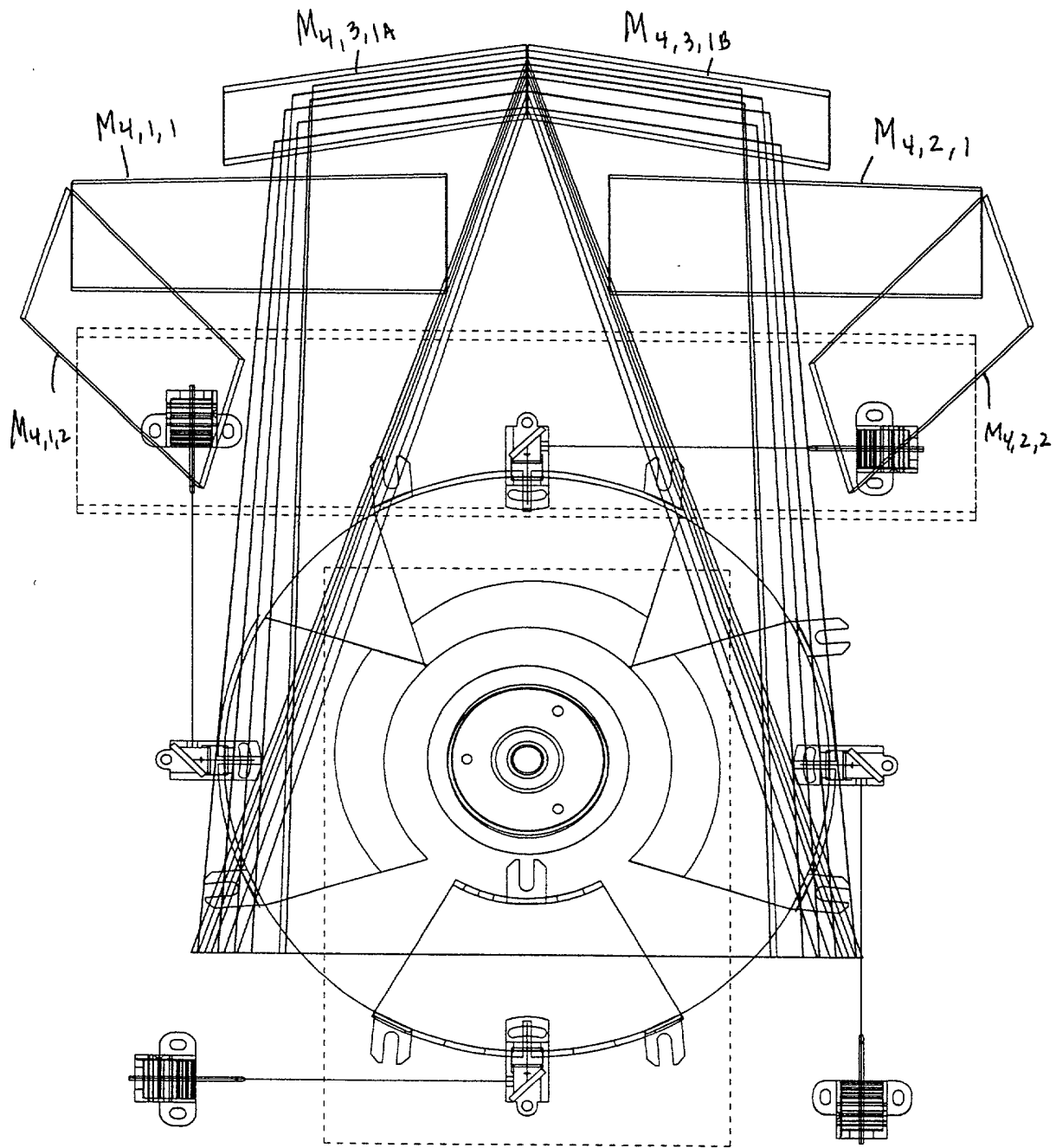


FIG. 5X2

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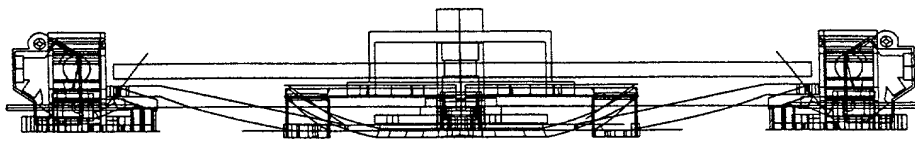
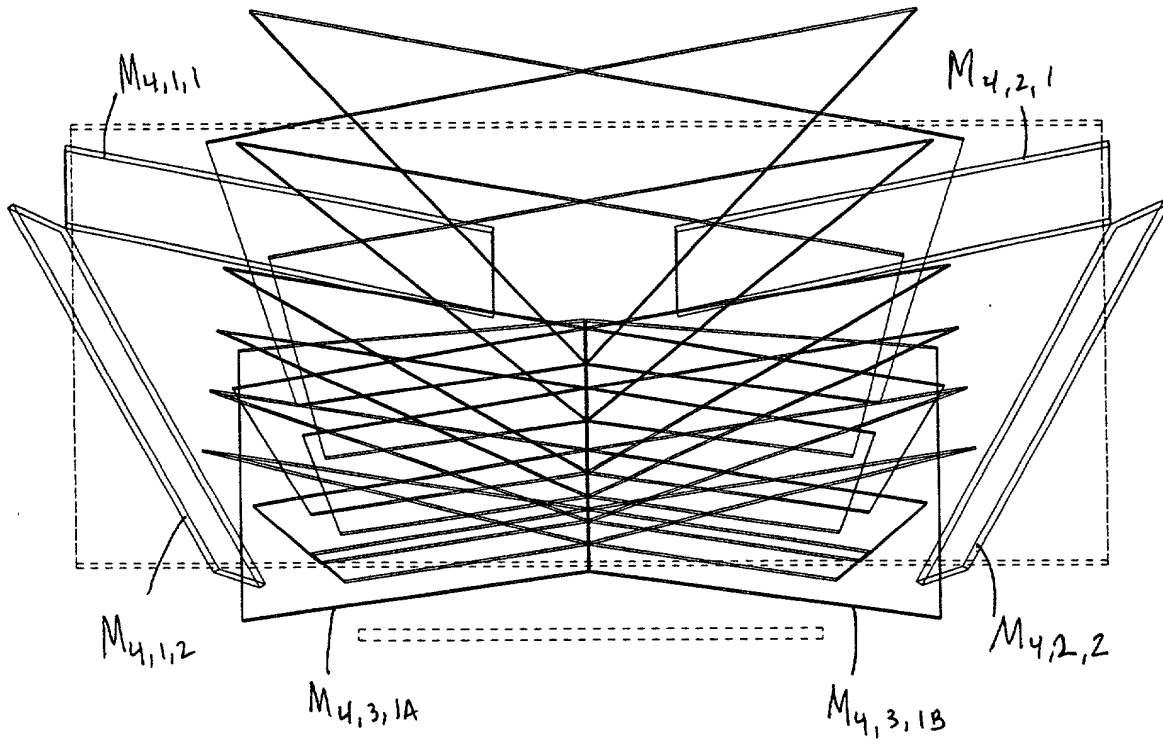


FIG. 5X3

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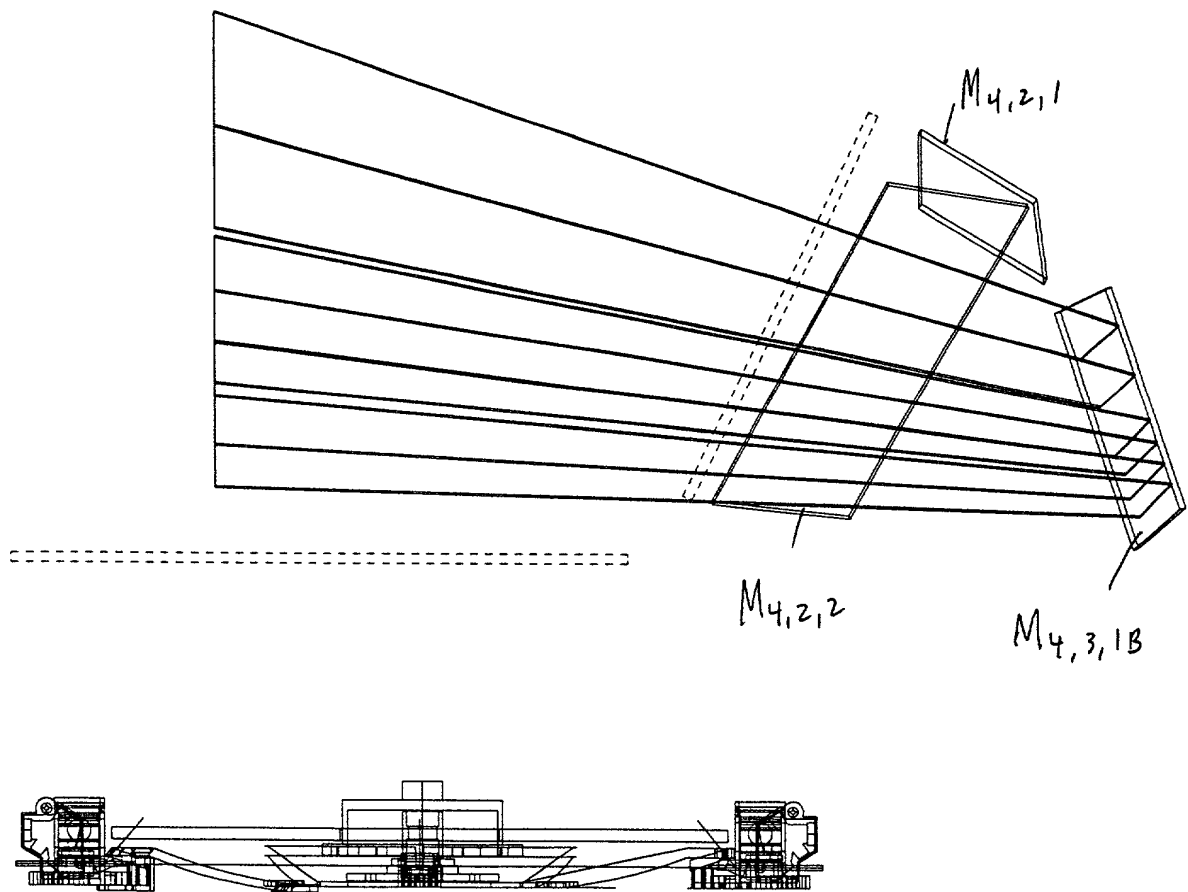


FIG. 5X4

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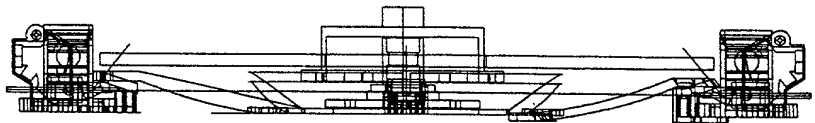
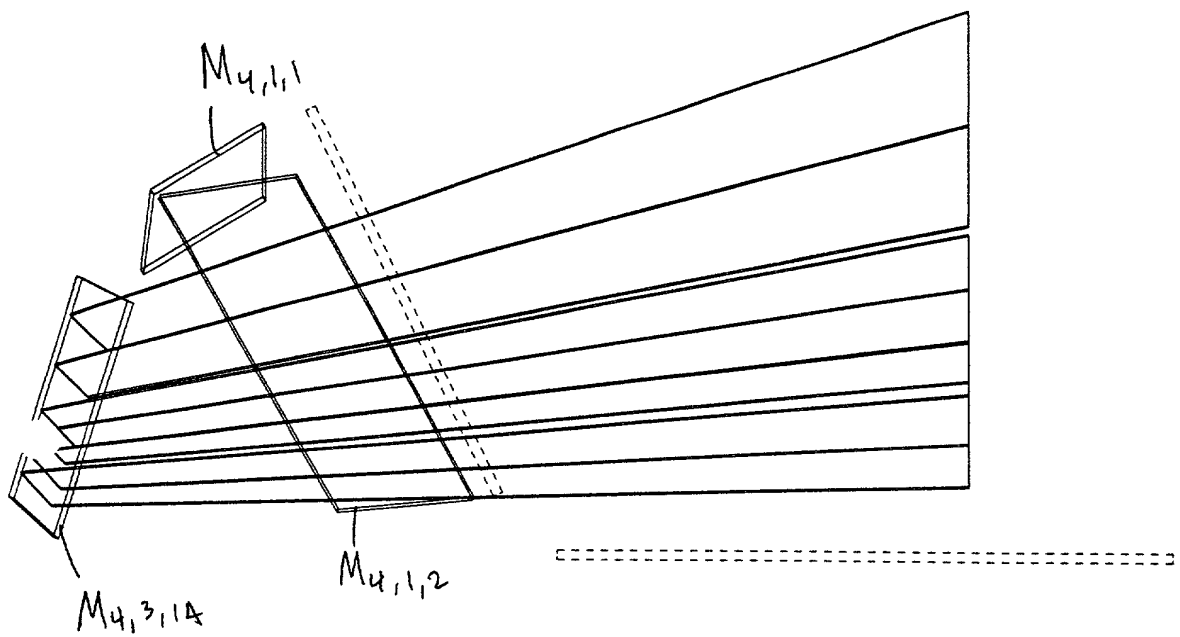


FIG. 5X5

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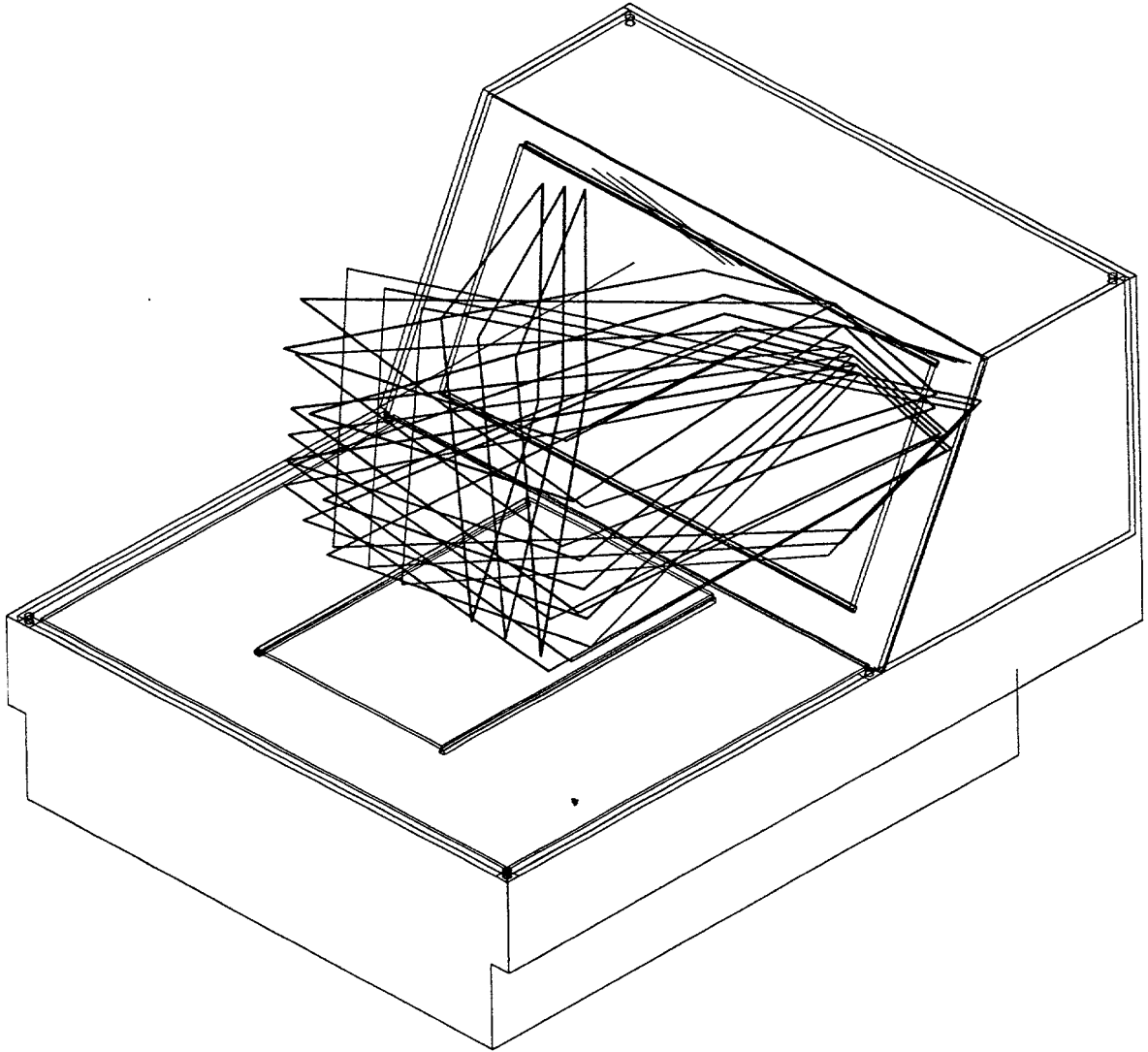


FIG. 5Y1

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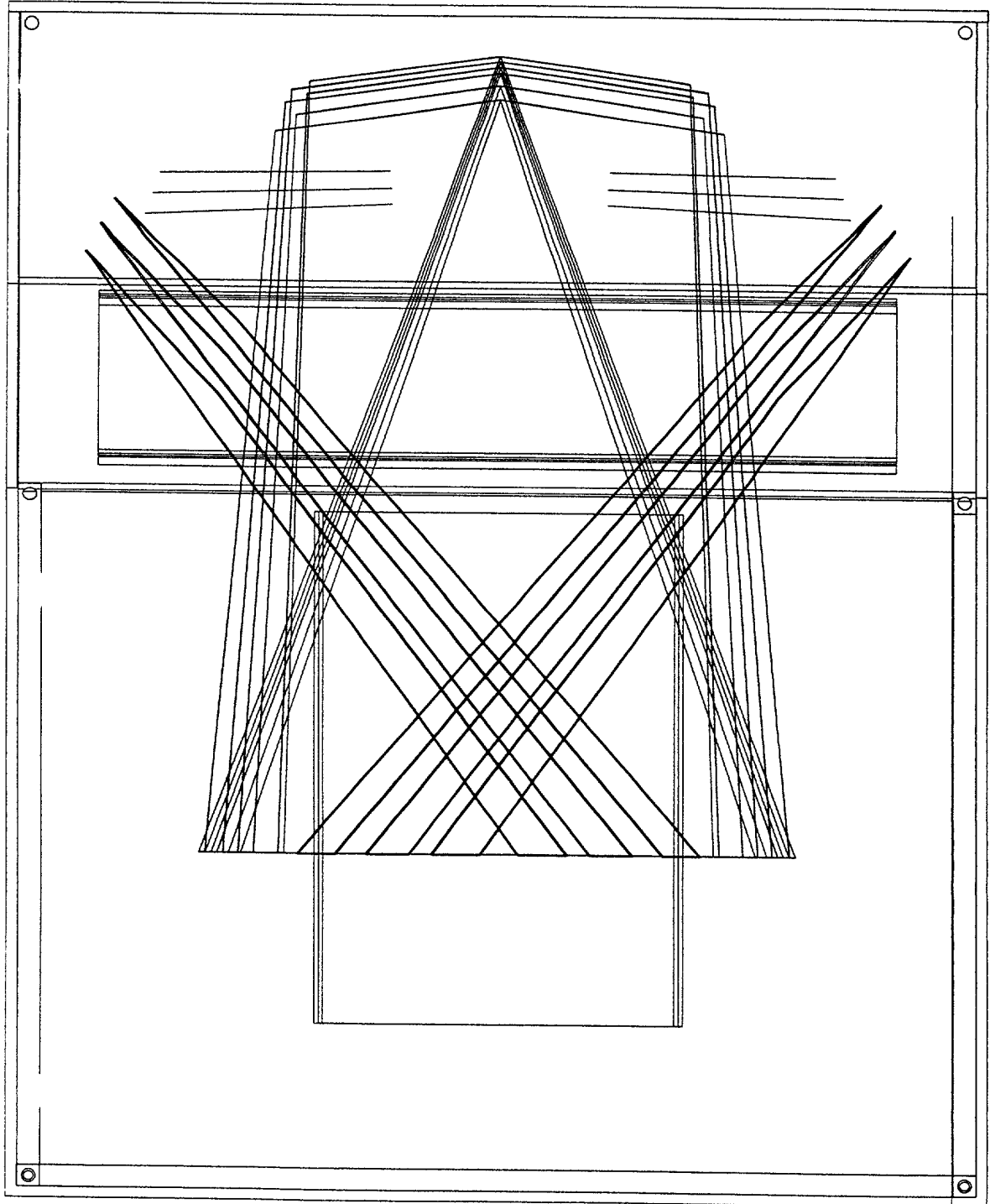


FIG. 5Y2

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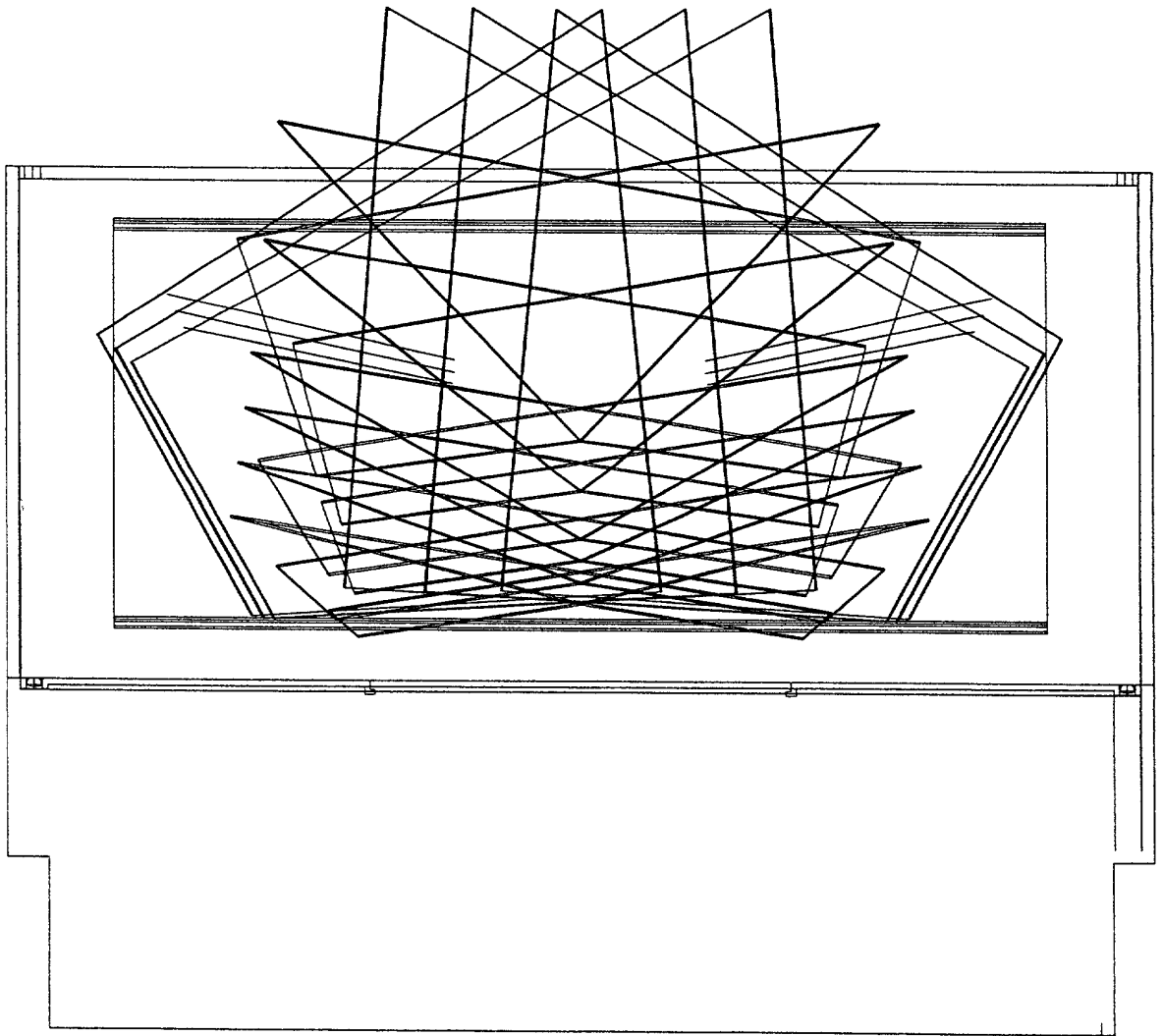


FIG. 5Y3

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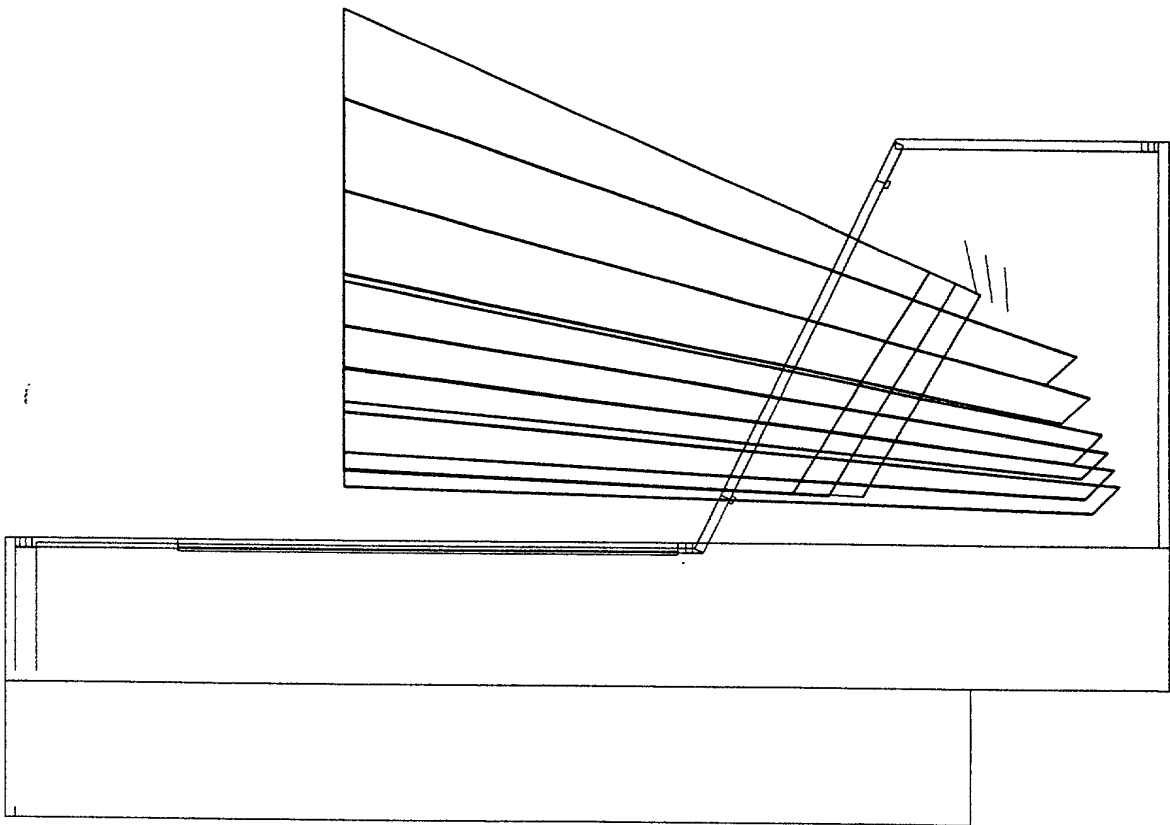


FIG. 5y4

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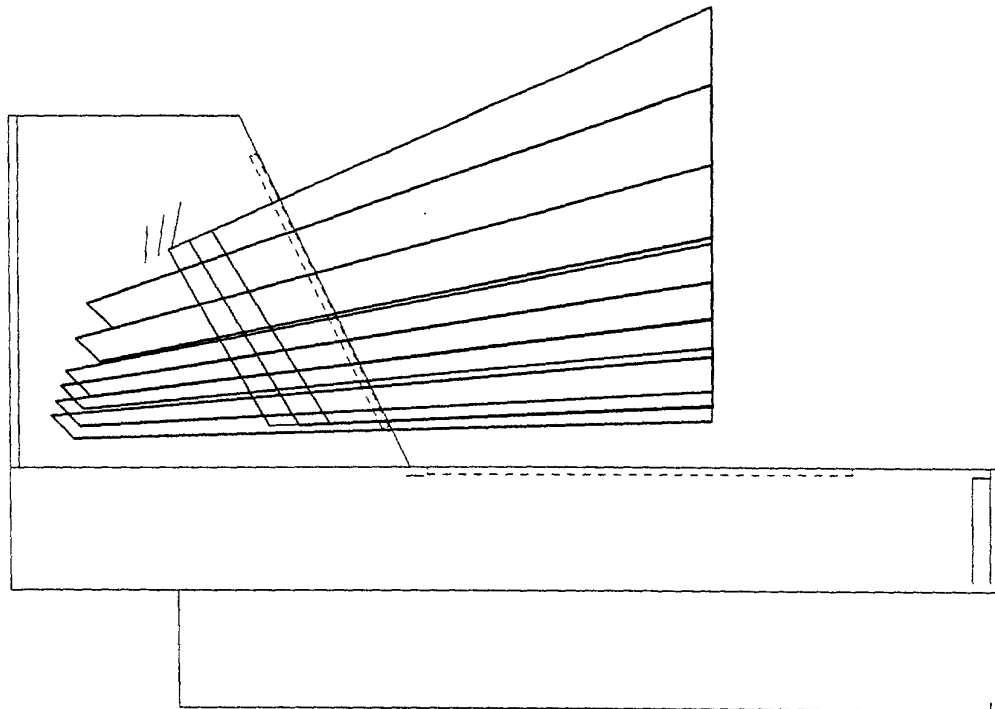


FIG. 545

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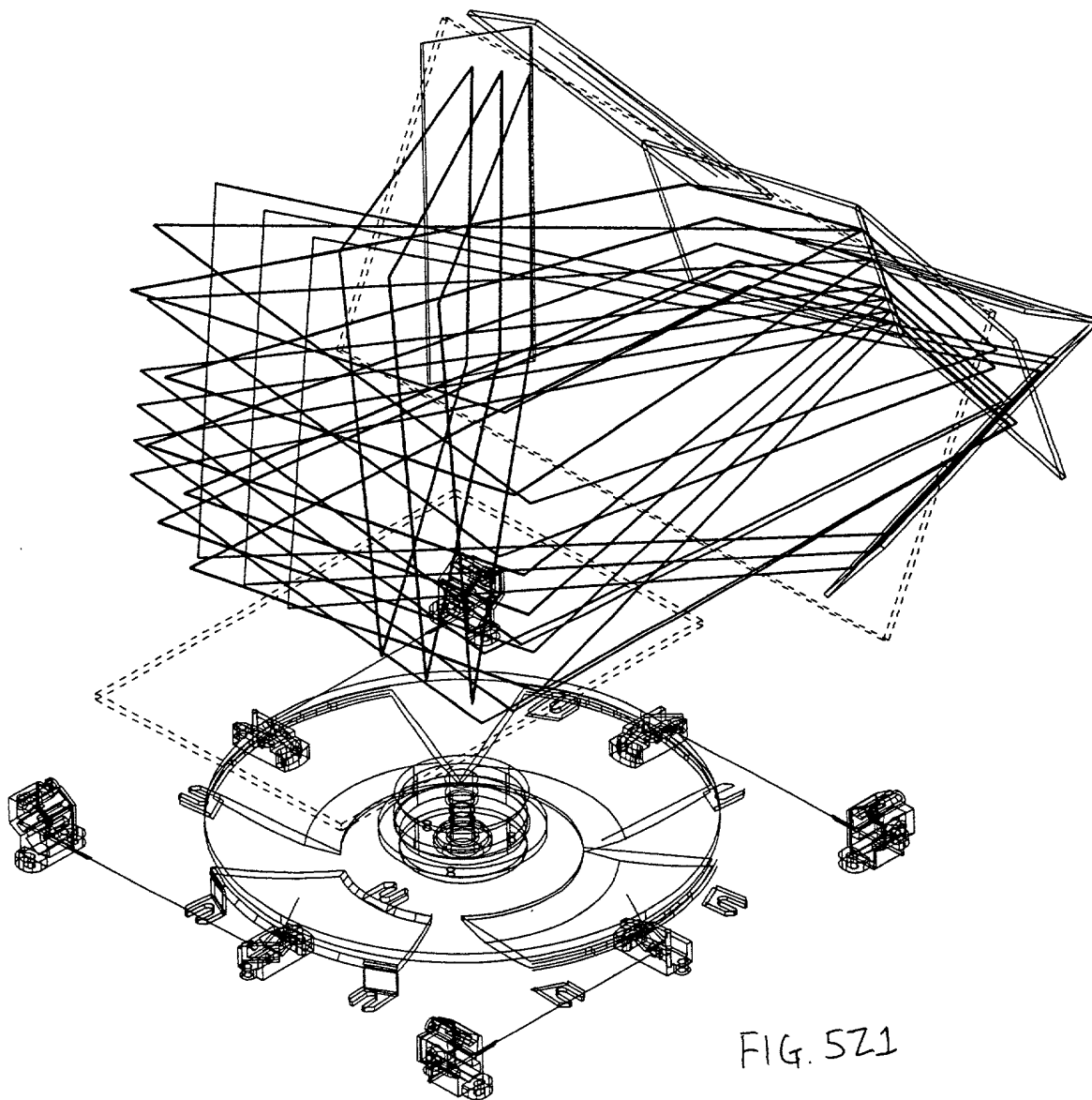


FIG. 5Z1

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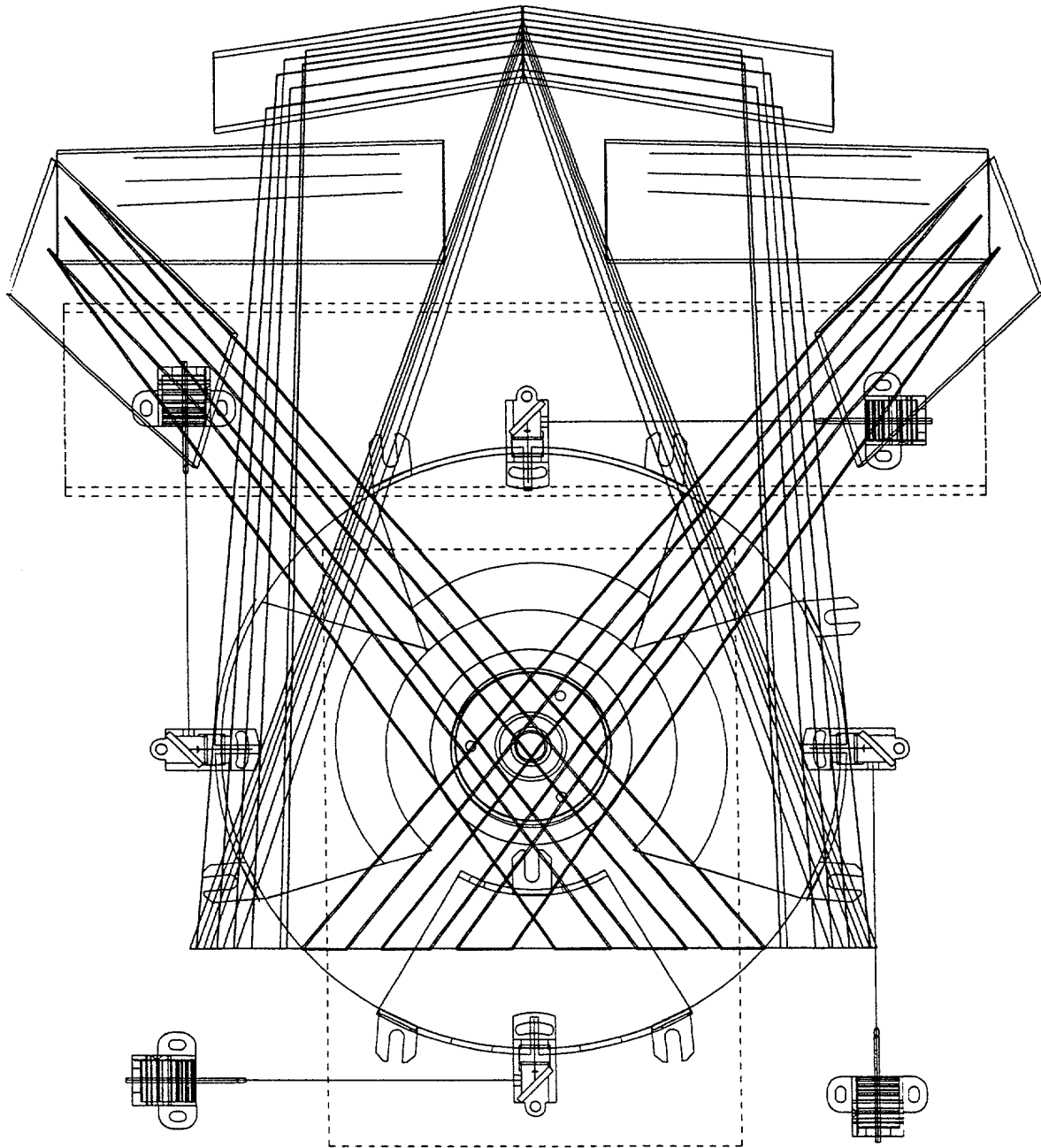


FIG. 572

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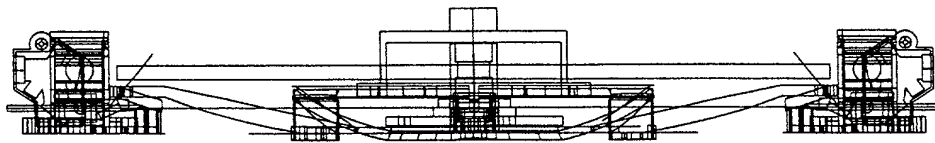
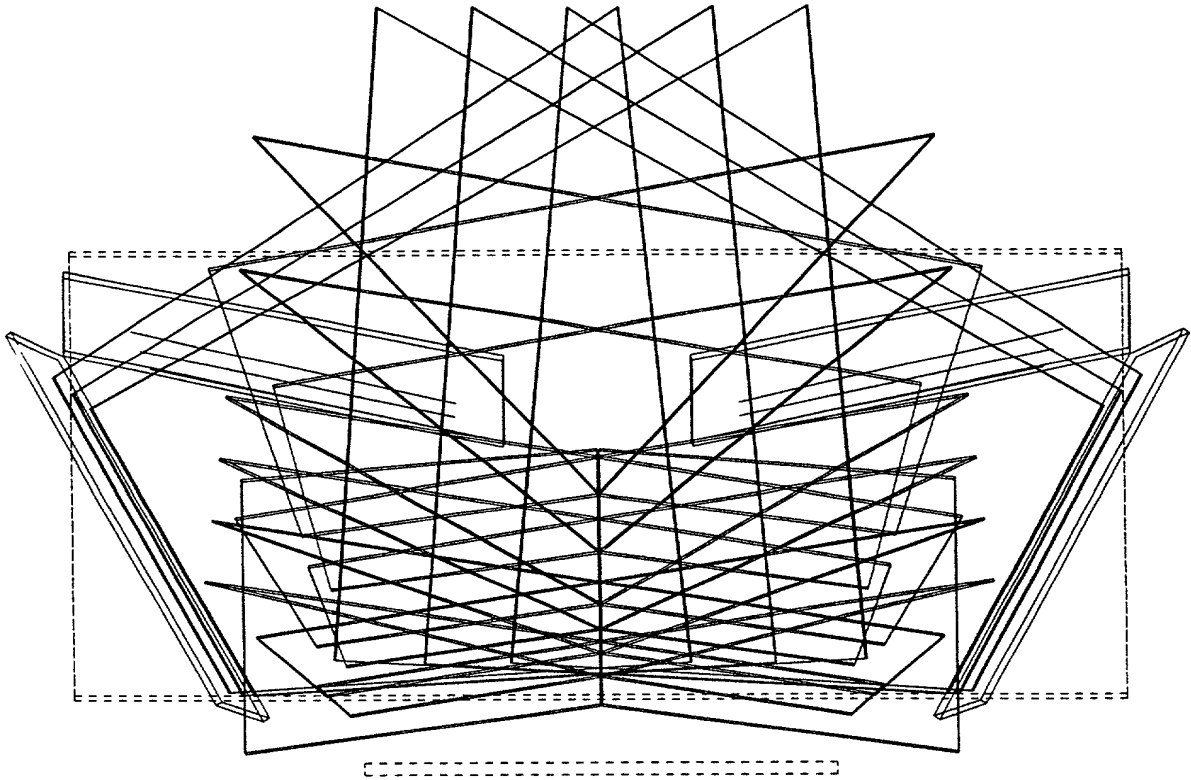


FIG. 523

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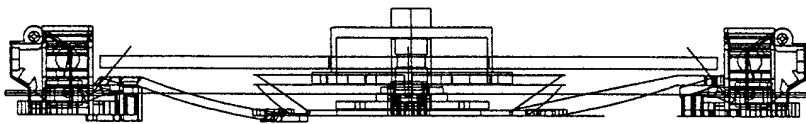
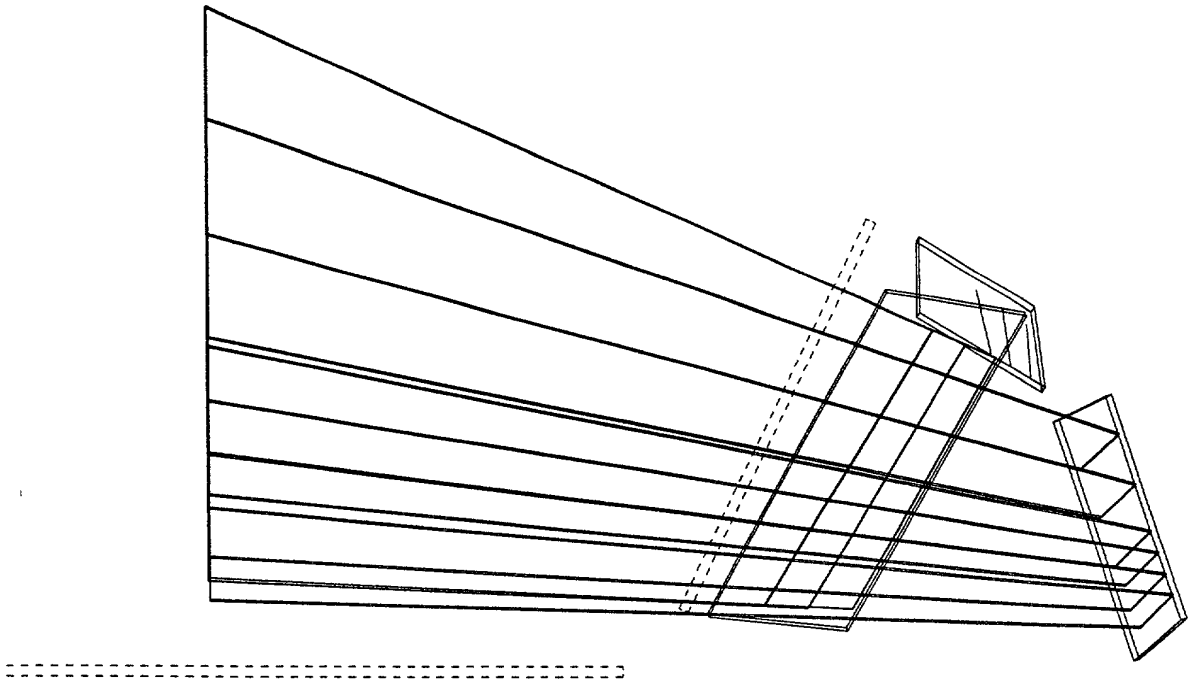


FIG. 524

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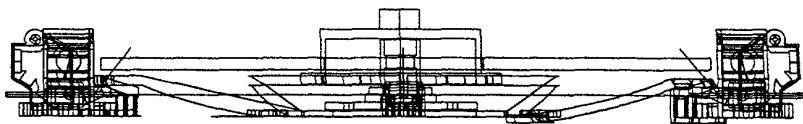
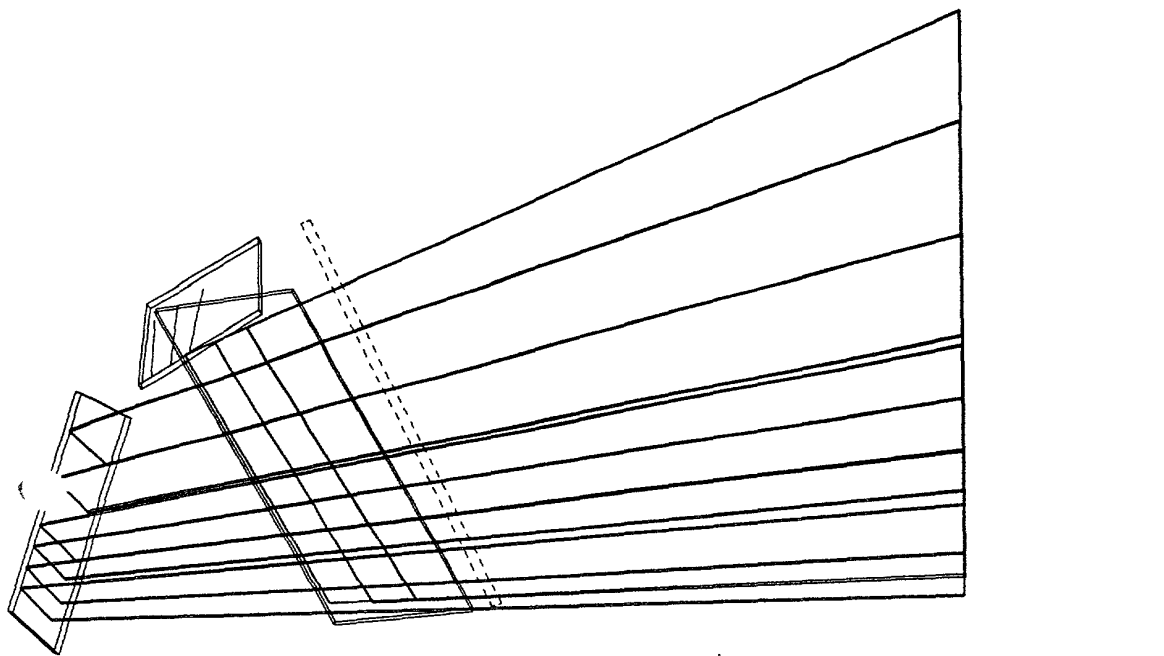


FIG. 5Z5

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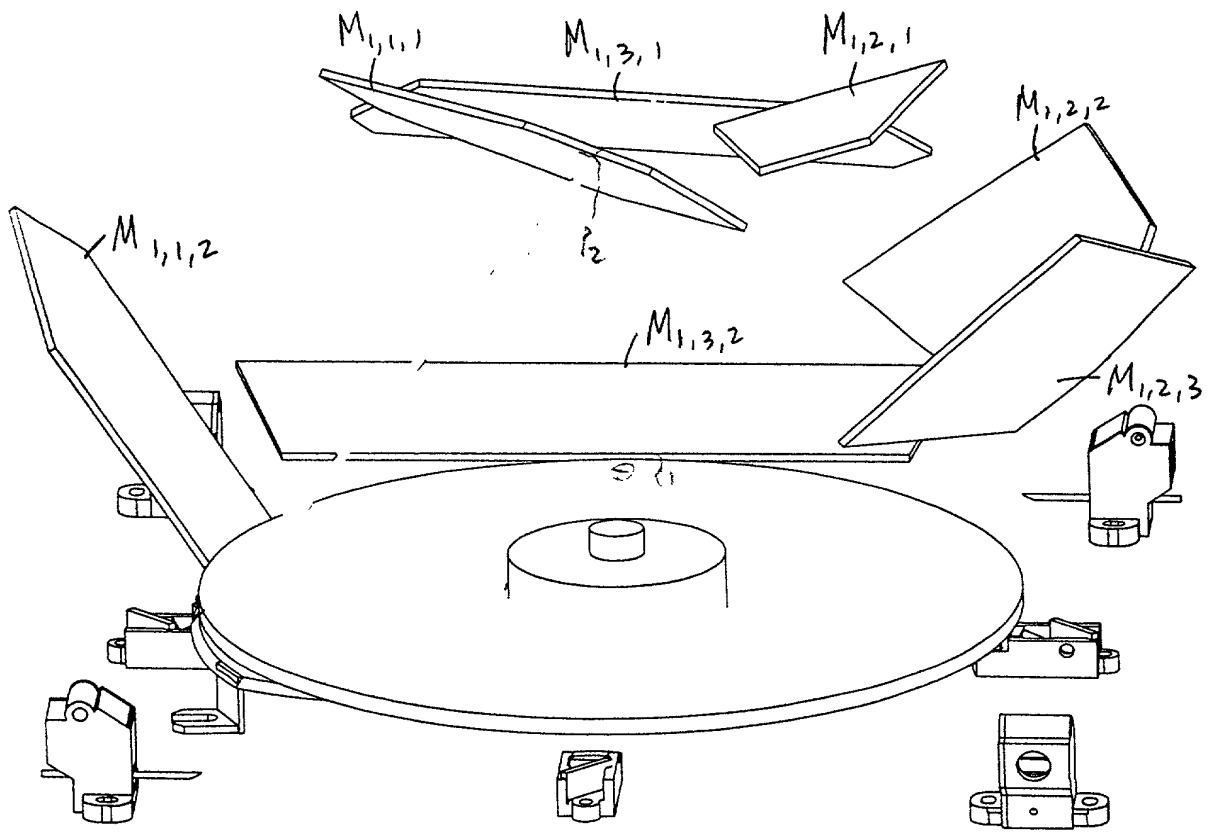


FIG. 6A1

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1

	N	O	P	Q	R	S	T	U	V	W	X
1											
2											
3											
4	Facet	7									
5	x	y	z								
6	-0.616	0.000	0.788								
7	End			Middle			End				
8	x	y	z		x	y	z		x	y	z
9	0.419	0.416	0.807		0.468	0.249	0.848		0.494	0.048	0.868
10	-0.253	0.917	-0.310		-0.316	0.832	-0.455		-0.387	0.704	-0.596
11	-0.469	-0.414	0.781		-0.537	-0.527	0.659		-0.603	-0.626	0.494
12											
13											
14	Mirror 1 Corners			Mirror 2 Corners			Mirror 3 Corners				
15	x	y	z		x	y	z		x	y	z
16	3.900	2.436	2.770		1.700	4.102	1.300				
17	4.100	1.879	2.400		3.300	4.400	1.980				
18	3.800	0.137	1.800		3.400	3.990	1.500				
19	3.150	-0.737	1.800		2.300	2.427	-0.625				
20	2.500	-0.159	2.450		1.700	2.524	-0.625				
21	2.650	0.757	2.770		1.050	3.101	-0.050				
22											
23											
24											

FIG. 6A2

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	A	B	C	D	E	F	G	H	I	J	K	L
1	Station 1											
2												
3												
4	High Elevation Left Skew	Facet	9									
5	(G2)	x	y	z								
6	Vector from Module	-0.616	0.000	0.788								
7		End										
8		x	y	z								
9	Output Vectors From Disk	0.378	0.445	0.812		0.441	0.235	0.866		0.464	0.068	0.883
10	First Mirror Reflected Directions	-0.269	0.927	-0.263		-0.349	0.823	-0.448		-0.408	0.717	-0.565
11	Second Mirror Reflected Directions	-0.479	-0.367	0.797		-0.566	-0.512	0.647		-0.621	-0.595	0.510
12	Third Mirror Reflected Directions											
13												
14		Mirror 1 Corners				Mirror 2 Corners				Mirror 3 Corners		
15		x	y	z		x	y	z		x	y	z
16	1	3.900	2.436	2.770		1.700	4.102	1.300				
17	2	4.100	1.879	2.400		3.300	4.400	1.980				
18	3	3.800	0.137	1.800		3.400	3.990	1.500				
19	4	3.150	-0.737	1.800		2.300	2.427	-0.625				
20	5	2.500	-0.159	2.450		1.700	2.524	-0.625				
21	6	2.650	0.757	2.770		1.050	3.101	-0.050				
22	7											
23	8											

FIG. 6A3

Station 1

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	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1											
2											
3											
4	Facet	11									
5	x	y	z								
6	-0.616	0.000	0.788								
7		End				Middle				End	
8	x	y	z		x	y	z		x	y	z
9	0.333	0.476	0.814		0.415	0.220	0.883		0.433	0.086	0.897
10	-0.284	0.935	-0.211		-0.382	0.813	-0.440		-0.429	0.728	-0.535
11	-0.487	-0.316	0.814		-0.594	-0.496	0.633		-0.638	-0.564	0.524
12											
13											
14		Mirror 1 Corners				Mirror 2 Corners				Mirror 3 Corners	
15	x	y	z		x	y	z		x	y	z
16	3.900	2.436	2.770		1.700	4.102	1.300				
17	4.100	1.879	2.400		3.300	4.400	1.980				
18	3.800	0.137	1.800		3.400	3.990	1.500				
19	3.150	-0.737	1.800		2.300	2.427	-0.625				
20	2.500	-0.159	2.450		1.700	2.524	-0.625				
21	2.650	0.757	2.770		1.050	3.101	-0.050				
22											
23											
24											

FIG. 6A4

Station 1

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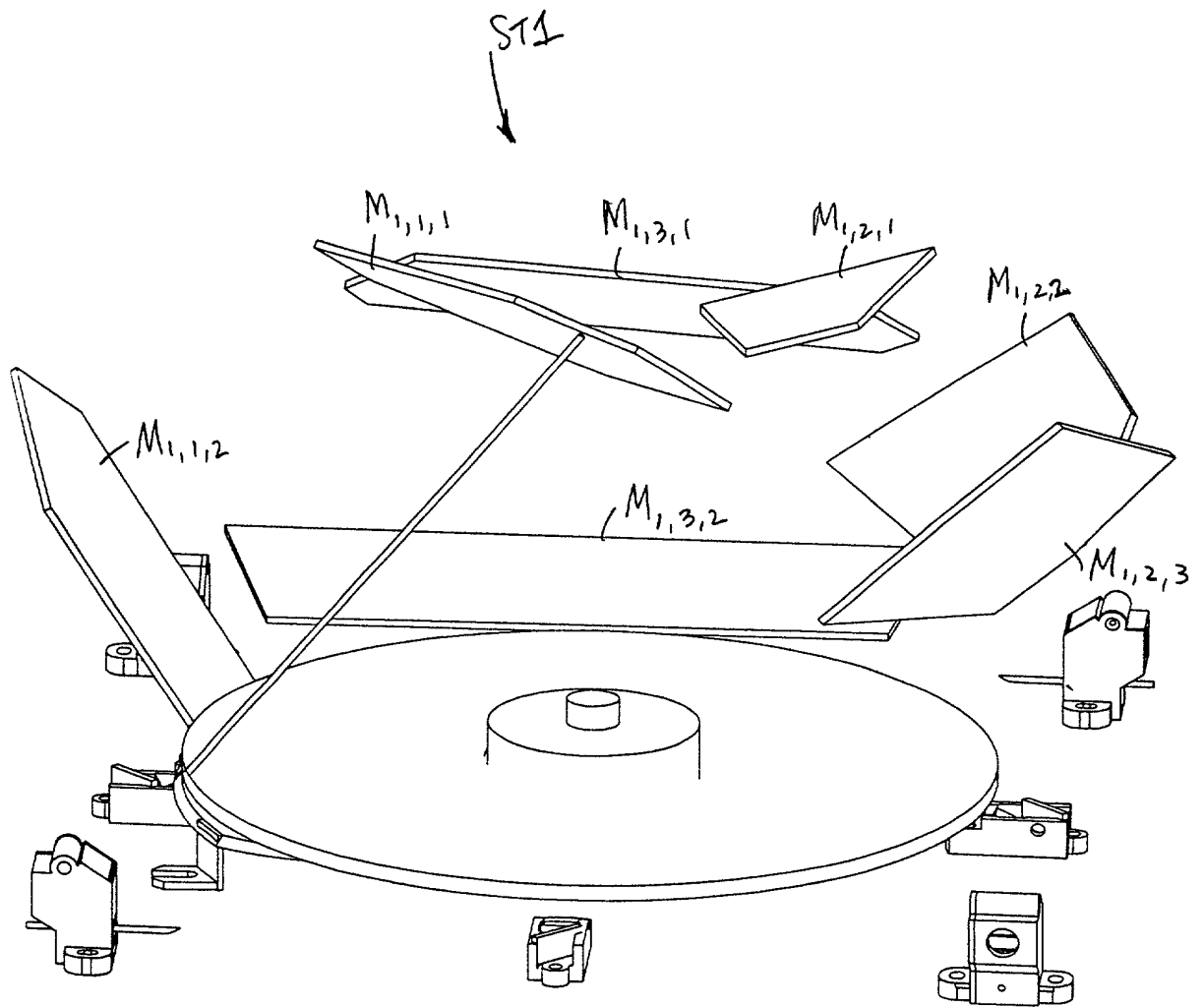


FIG. 6B1

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[illegible]

FIG. 6B2

Station 1

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A		B	C	D	E	F	G	H	I	J	K	L
25	High Elevation Right Skew	Facet	10									
26	(G1)	x	y	z								
27	Vector from Module	-0.616	0.000	0.788								
28			End				Middle				End	
29		x	y	z		x	y	z		x	y	z
30	Output Vectors From Disk	0.441	-0.235	0.866		0.441	-0.235	0.866		0.398	-0.391	0.830
31	First Mirror Reflected Directions	0.380	-0.673	-0.635		0.380	-0.673	-0.635		0.343	-0.784	-0.517
32	Second Mirror Reflected Directions	-0.998	0.000	-0.067		-0.998	0.000	-0.067		-0.991	-0.133	0.033
33	Third Mirror Reflected Directions	-0.589	0.553	0.589		-0.589	0.553	0.589		-0.578	0.426	0.697
34												
35		Mirror 1 Corners				Mirror 2 Corners				Mirror 3 Corners		
36		x	y	z		x	y	z		x	y	z
37	1	2.550	-1.630	2.650		4.000	-2.630	0.049		3.746	-3.750	1.000
38	2	4.150	-2.267	2.770		4.900	-1.400	0.775		1.371	-3.300	2.100
39	3	3.950	0.196	2.060		4.600	-3.150	2.118		1.159	-1.600	0.800
40	4	2.420	-0.309	2.270		3.800	-3.900	1.067		2.824	-2.000	0.100
41	5									3.771	-2.700	0.100
42	6											
43	7											
44	8											
45												

FIG. 6B3

Station 1

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
25 Facet	12									
26 x	y	z								
27 -0.616	0.000	0.788								
28	End									
29 x	y	z								
30 0.415	-0.220	0.883								
31 0.351	-0.669	-0.655								
32 -0.995	-0.012	-0.099								
33 -0.562	0.574	0.596								
34										
35 Mirror 1 Corners										
36 x	y	z								
37 2.550	-1.630	2.650								
38 4.150	-2.267	2.770								
39 3.950	0.196	2.060								
40 2.420	-0.309	2.270								
41										
42										
43										
44										
45										

FIG. 6B4

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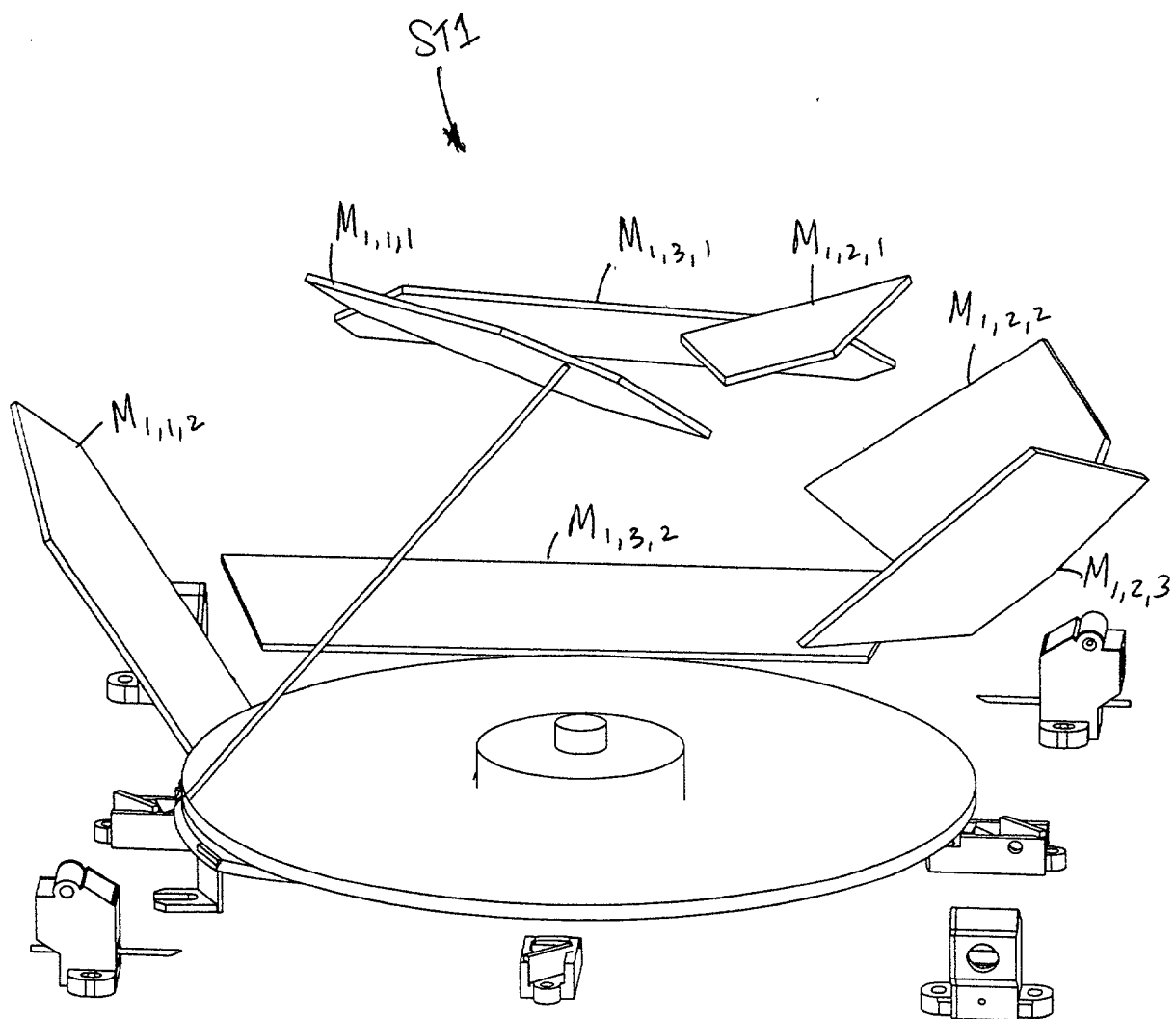


FIG.6C1

1. The first column contains the facet numbers.
 2. The second column contains the facet names.
 3. The third column contains the facet area.
 4. The fourth column contains the facet volume.
 5. The fifth column contains the facet weight.
 6. The sixth column contains the facet density.
 7. The seventh column contains the facet refractive index.
 8. The eighth column contains the facet birefringence.
 9. The ninth column contains the facet optical activity.
 10. The tenth column contains the facet optical activity.

N	O	P	Q	R	S	T	U	V	W	X
46	Facet	1								
47	x	y	z							
48	-0.616	0.000	0.788							
49	End									
50	x	y	z							
51	0.753	0.321	0.575							
52	-0.366	0.443	-0.819							
53	-0.574	0.468	0.672							
54										
55										
56	Mirror 1 Corners									
57	x	y	z							
58	4.250	1.500	2.547							
59	4.950	2.000	2.029							
60	5.150	1.800	1.851							
61	5.000	-1.800	1.656							
62	4.750	-1.950	1.844							
63	4.100	-1.500	2.405							
64										
65										

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FIG. 6C2

Station 1

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FIG. 6C3

	A	B	C	D	E	F	G	H	I	J	K	L
46	Low Elevation	Facet	2									
47	(G3)	x	y	z								
48	Vector from Module	-0.616	0.000	0.788								
49			End									
50		x	y	z								
51	Output Vectors From Disk	0.734	0.305	0.607								
52	First Mirror Reflected Directions	-0.402	0.429	-0.809								
53	Second Mirror Reflected Directions	-0.607	0.454	0.653								
54	Third Mirror Reflected Directions											
55												
56												
57												
58		1	4.250	1.500	2.547							
59		2	4.950	2.000	2.029							
60		3	5.150	1.800	1.851							
61		4	5.000	-1.800	1.656							
62		5	4.750	-1.950	1.844							
63		6	4.100	-1.500	2.405							
64		7										
65		8										

Station 1

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Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
46 Facet	3									
47 x	y	z								
48 -0.616	0.000	0.788								
49	End				Middle				End	
50 x	y	z		x	y	z		x	y	z
51 0.714	0.290	0.638		0.743	0.000	0.669		0.709	-0.311	0.633
52 -0.438	0.416	-0.797		-0.487	0.134	-0.863		-0.485	-0.181	-0.855
53 -0.638	0.440	0.632		-0.704	0.161	0.692		-0.702	-0.155	0.695
54										
55										
56	Mirror 1 Corners			Mirror 2 Corners				Mirror 3 Corners		
57 x	y	z		x	y	z		x	y	z
58 4.250	1.500	2.547		3.150	2.450	0.030				
59 4.950	2.000	2.029		4.500	2.800	0.213				
60 5.150	1.800	1.851		4.350	-2.200	0.277				
61 5.000	-1.800	1.656		3.050	-1.850	0.089				
62 4.750	-1.950	1.844								
63 4.100	-1.500	2.405								
64										
65										

FIG. 6C4

Station 1

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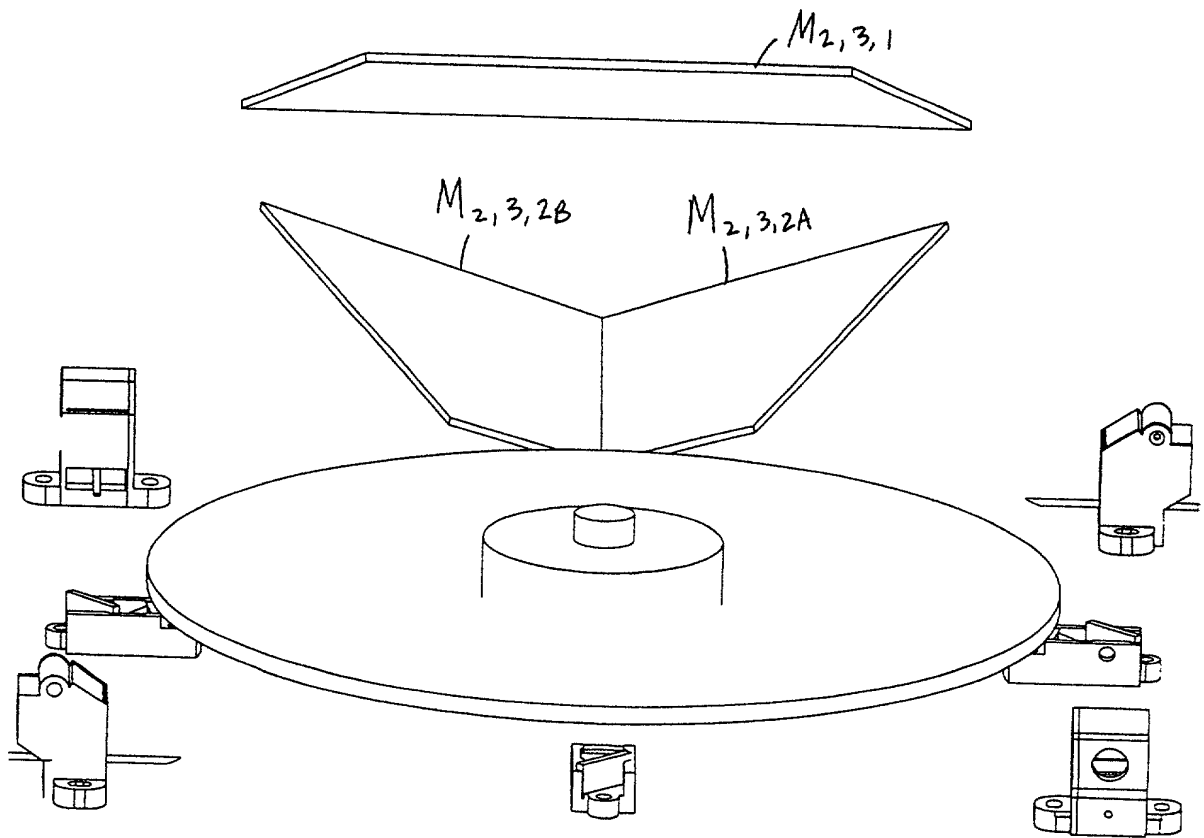


FIG. 6D1

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	N	O	P	Q	R	S	T	U	V	W	X
46	Facet	1									
47	x	y	z								
48	-0.616	0.000	0.788								
49		End									
50	x	y	z								
51	0.788	0.000	0.616								
52	-0.140	0.000	-0.990								
53	-0.595	0.448	0.667								
54											
55											
56											
57	x	y	z								
58	3.750	-1.600	2.509								
59	5.100	-2.400	1.728								
60	5.100	2.400	1.728								
61	3.750	1.600	2.509								
62											
63											
64											
65											
66											
67											
68											
69	This station uses a split mirror for mirror #2. The second part of mirror 2 is the abo										
70											
71											
72											
73											
74											
75											
76											

FIG. 6D2

Station 2

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	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
46	Facet	2									
47	x	y	z								
48	-0.616	0.000	0.788								
49		End									
50	x	y	z								
51	0.766	0.000	0.643								
52	-0.175	0.000	-0.985								
53	-0.623	0.440	0.647								
54											
55											
56											
57	x	y	z								
58	3.750	-1.600	2.509								
59	5.100	-2.400	1.728								
60	5.100	2.400	1.728								
61	3.750	1.600	2.509								
62											
63											
64											
65											
66											
67											
68											
69	This station uses a split mirror for mirror #2. The second part of mirror 2 is the abo										
70											
71											
72											
73											
74											
75											
76											

FIG. 6D3

Station 2

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	A	B	C	D	E	F	G	H	I	J	K	L
46	Low Elevation	Facet	3									
47		x	y	z								
48	Vector from Module	-0.616	0.000	0.788								
49			End									
50		x	y	z								
51	Output Vectors From Disk	0.743	0.000	0.669								
52	First Mirror Reflected Directions	-0.209	0.000	-0.978								
53	Second Mirror Reflected Directions	-0.649	0.433	0.625								
54	Third Mirror Reflected Directions											
55												
56												
57												
58		1	3.750	-1.600	2.509							
59		2	5.100	-2.400	1.728							
60		3	5.100	2.400	1.728							
61		4	3.750	1.600	2.509							
62		5										
63		6										
64		7										
65		8										
66												
67												
68												
69	Note: Special Case!	This station uses a split mirror for mirror #2. The second part of mirror 2 is the above										
70												
71	Second Part of Mirror 2											
72												
73												
74												
75												
76												
77												

FIG. 6D4

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	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV
46	Facet	4									
47	x	y	z								
48	-0.616	0.000	0.788								
49	End			Middle			End				
50	x	y	z		x	y	z		x	y	z
51	0.719	0.000	0.695		0.719	0.000	0.695		0.664	-0.395	0.635
52	-0.243	0.000	-0.970		-0.243	0.000	-0.970		-0.220	-0.395	-0.892
53	-0.675	0.425	0.603		-0.675	0.425	0.603		-0.668	0.046	0.742
54											
55											
56	Mirror 1 Corners			Mirror 2 Corners			Mirror 3 Corners				
57	x	y	z		x	y	z		x	y	z
58	3.750	-1.600	2.509		3.000	0.000	-0.112				
59	5.100	-2.400	1.728		4.800	0.000	0.382				
60	5.100	2.400	1.728		5.071	-2.256	1.066				
61	3.750	1.600	2.509		5.071	-2.256	1.066				
62					3.060	-1.000	0.175				
63											
64											
65											
66											
67											
68											
69	This station uses a split mirror for mirror #2. The second part of mirror 2 is the above										
70											
71					3.000	0.000	-0.112				
72					4.800	0.000	0.382				
73					5.071	2.256	1.066				
74					5.071	2.256	1.066				
75					3.060	1.000	0.175				
76											

FIG. 605

Station 2 uses a split mirror for mirror #2. The second part of mirror 2 is the abo

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	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH
46	Facet	5									
47	x	y	z								
48	-0.616	0.000	0.788								
49		End									
50	x	y	z								
51	0.669	0.000	0.743								
52	-0.310	0.000	-0.951								
53	-0.724	0.407	0.557								
54											
55											
56											
57	x	y	z								
58	3.750	-1.600	2.509								
59	5.100	-2.400	1.728								
60	5.100	2.400	1.728								
61	3.750	1.600	2.509								
62											
63											
64											
65											
66											
67											
68											
69	This station uses a split mirror for mirror #2. The second part of mirror 2 is the abo										
70											
71											
72											
73											
74											
75											
76											

FIG. 6D6

Station 2

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764 2765 2766 2767 2768 2769 2770 2771 2772 2773 2774 2775 2776 2777 2778 2779 2780 2781 2782 2783 2784 2785 2786 2787 2788 2789 2790 2791 2792 2793 2794 2795 2796 2797 2798 2799 2800 2801 2802 2803 2804 2805 2806 2807 2808 2809 2810 2811 2812 2813 2814 2815 2816 2817 2

FIG. 6D7

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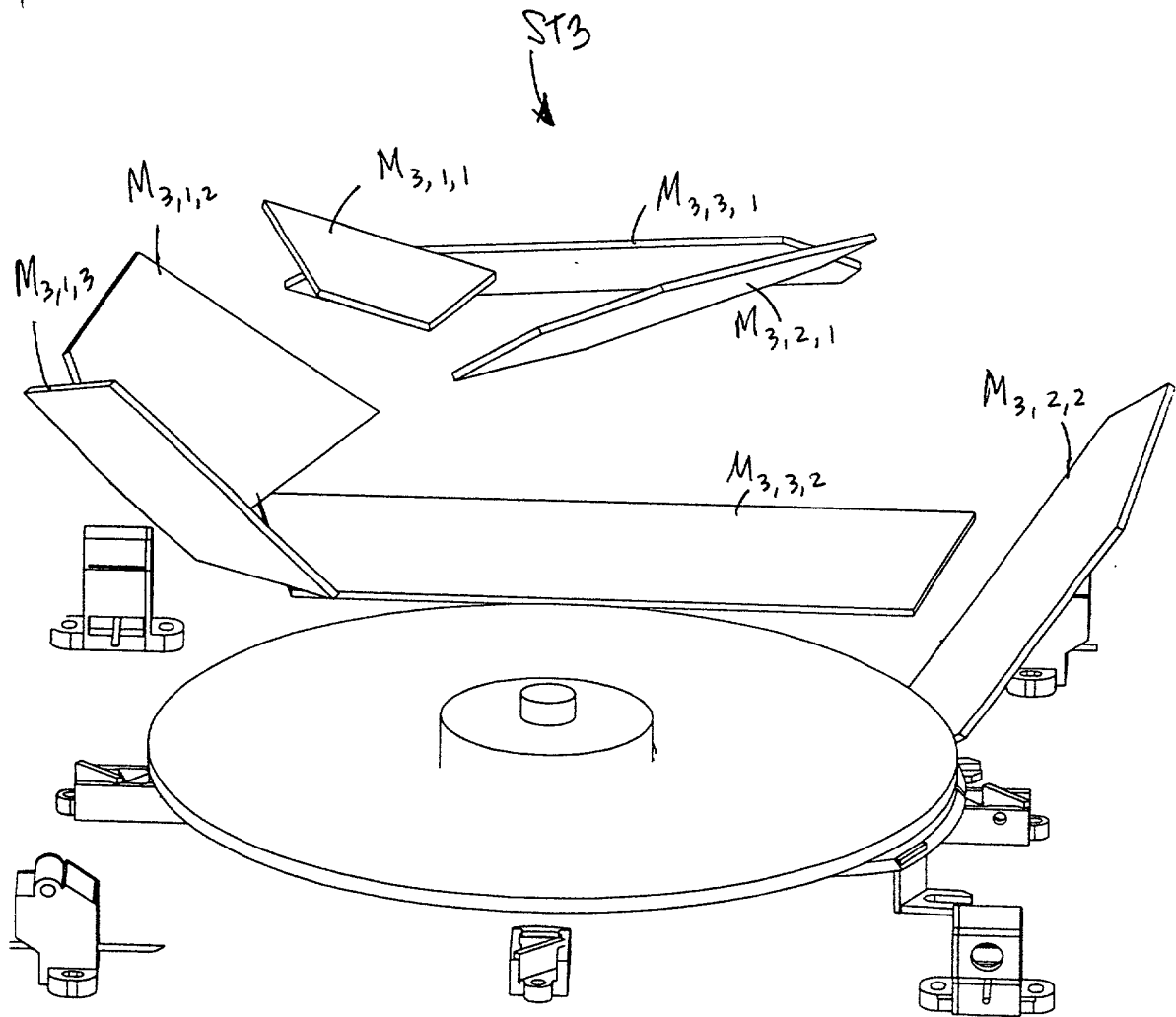


FIG. 6E1

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	N	O	P	Q	R	S	T	U	V	W	X
1											
2											
3											
4	Facet	7									
5	x	y	z								
6	-0.616	0.000	0.788								
7		End				Middle				End	
8	x	y	z		x	y	z		x	y	z
9	0.468	0.249	0.848		0.468	0.249	0.848		0.430	0.387	0.816
10	0.408	0.675	-0.614		0.408	0.675	-0.614		0.375	0.774	-0.510
11	-0.999	-0.012	-0.034		-0.999	-0.012	-0.034		-0.993	0.106	0.054
12	-0.616	-0.531	0.582		-0.616	-0.531	0.582		-0.605	-0.419	0.677
13											
14		Mirror 1 Corners				Mirror 2 Corners				Mirror 3 Corners	
15	x	y	z		x	y	z		x	y	z
16	2.550	1.630	2.650		4.000	2.630	0.049		3.746	3.750	1.000
17	4.150	2.267	2.770		4.900	1.400	0.775		1.371	3.300	2.100
18	3.950	-0.196	2.060		4.600	3.150	2.118		1.159	1.600	0.800
19	2.420	0.309	2.270		3.800	3.900	1.067		2.824	2.000	0.100
20									3.771	2.700	0.100
21											
22											
23											
24											

FIG. 6E2

Station 3

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	A	B	C	D	E	F	G	H	I	J	K	L
1	Station 3											
2												
3												
4	High Elevation Left Skew	Facet	9									
5	(G2)	x	y	z								
6	Vector from Module	-0.616	0.000	0.788								
7			End				Middle				End	
8		x	y	z		x	y	z		x	y	z
9	Output Vectors From Disk	0.441	0.235	0.866		0.441	0.235	0.866		0.398	0.391	0.830
10	First Mirror Reflected Directions	0.380	0.673	-0.635		0.380	0.673	-0.635		0.343	0.784	-0.517
11	Second Mirror Reflected Directions	-0.998	0.000	-0.067		-0.998	0.000	-0.067		-0.991	0.133	0.033
12	Third Mirror Reflected Directions	-0.589	-0.553	0.589		-0.589	-0.553	0.589		-0.578	-0.426	0.697
13												
14			Mirror 1 Corners				Mirror 2 Corners				Mirror 3 Corners	
15		x	y	z		x	y	z		x	y	z
16	1	2.550	1.630	2.650		4.000	2.630	0.049		3.746	3.750	1.000
17	2	4.150	2.267	2.770		4.900	1.400	0.775		1.371	3.300	2.100
18	3	3.950	-0.196	2.060		4.600	3.150	2.118		1.159	1.600	0.800
19	4	2.420	0.309	2.270		3.800	3.900	1.067		2.824	2.000	0.100
20	5									3.771	2.700	0.100
21	6											
22	7											
23	8											

FIG. 6E3

Station 3

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	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1											
2											
3											
4	Facet	11									
5	x	y	z								
6	-0.616	0.000	0.788								
7		End			Middle					End	
8	x	y	z		x	y	z		x	y	z
9	0.415	0.220	0.883		0.415	0.220	0.883		0.369	0.387	0.845
10	0.351	0.669	-0.655		0.351	0.669	-0.655		0.312	0.788	-0.530
11	-0.995	0.012	-0.099		-0.995	0.012	-0.099		-0.988	0.153	0.007
12	-0.562	-0.574	0.596		-0.562	-0.574	0.596		-0.550	-0.439	0.710
13											
14		Mirror 1 Corners			Mirror 2 Corners				Mirror 3 Corners		
15	x	y	z		x	y	z		x	y	z
16	2.550	1.630	2.650		4.000	2.630	0.049		3.746	3.750	1.000
17	4.150	2.267	2.770		4.900	1.400	0.775		1.371	3.300	2.100
18	3.950	-0.196	2.060		4.600	3.150	2.118		1.159	1.600	0.800
19	2.420	0.309	2.270		3.800	3.900	1.067		2.824	2.000	0.100
20									3.771	2.700	0.100
21											
22											
23											
24											

FIG. 6E4

Station 3

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ST3

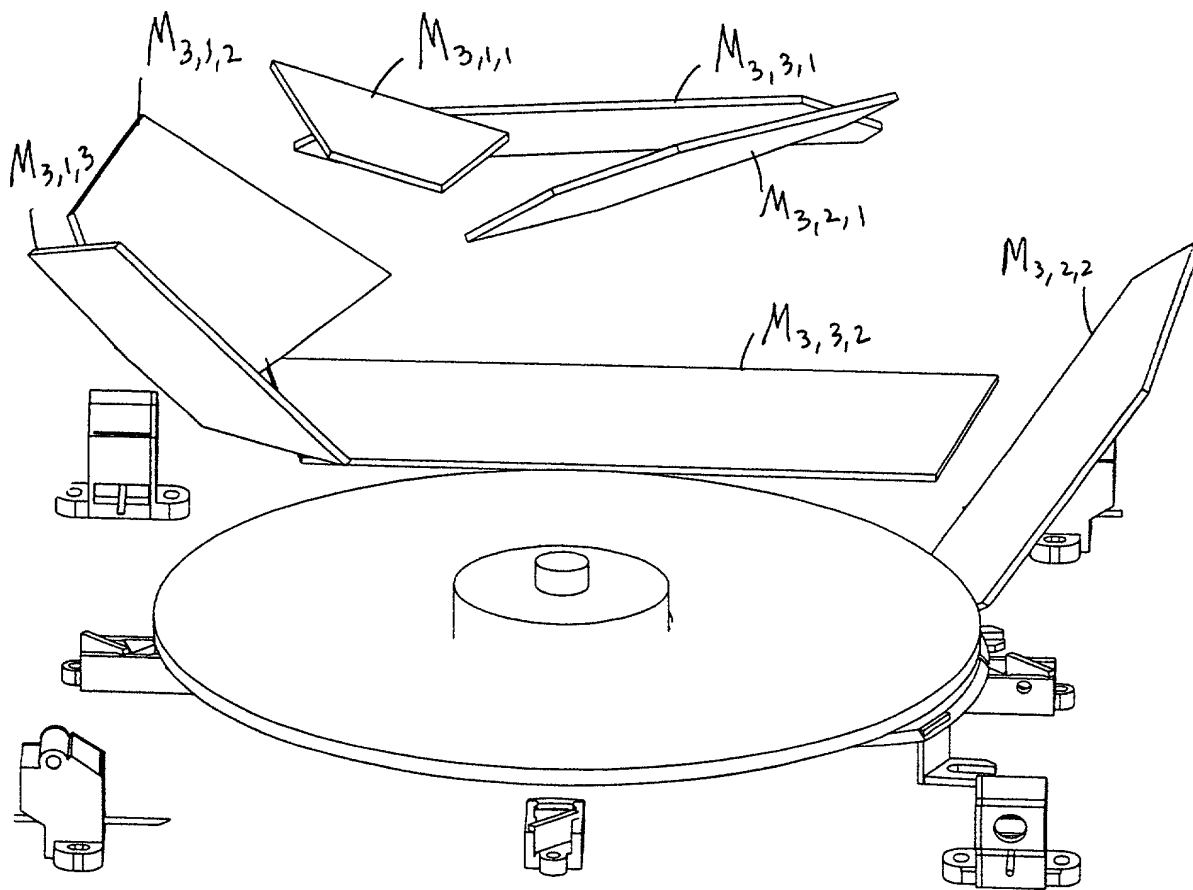


FIG. 6F1

When using this system, it is important to use the correct units and to check the units of the data entered.

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	N	O	P	Q	R	S	T	U	V	W	X
25	Facet	8									
26	x	y	z								
27	-0.616	0.000	0.788								
28		End									
29	x	y	z								
30	0.419	-0.416	0.807								
31	-0.253	-0.917	-0.310								
32	-0.469	0.414	0.781								
33											
34											
35											
36											
37	3.900	-2.436	2.770								
38	4.100	-1.879	2.400								
39	3.800	-0.137	1.800								
40	3.150	0.737	1.800								
41	2.500	0.159	2.450								
42	2.650	-0.757	2.770								
43											
44											

Fig. 6F2

Station 3

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	A	B	C	D	E	F	G	H	I	J	K	L
25	High Elevation Right Skew	Facet	10									
26	(G1)	x	y	z								
27	Vector from Module	-0.616	0.000	0.788								
28			End				Middle				End	
29		x	y	z		x	y	z		x	y	z
30	Output Vectors From Disk	0.378	-0.445	0.812		0.441	-0.235	0.866		0.464	-0.068	0.883
31	First Mirror Reflected Directions	-0.269	-0.927	-0.263		-0.349	-0.823	-0.448		-0.408	-0.717	-0.565
32	Second Mirror Reflected Directions	-0.479	0.367	0.797		-0.566	0.512	0.647		-0.621	0.595	0.510
33	Third Mirror Reflected Directions											
34												
35												
36												
37		1	3.900	-2.436	2.770		1.700	-4.102	1.300			
38		2	4.100	-1.879	2.400		3.300	-4.400	1.980			
39		3	3.800	-0.137	1.800		3.400	-3.990	1.500			
40		4	3.150	0.737	1.800		2.300	-2.427	-0.625			
41		5	2.500	0.159	2.450		1.700	-2.524	-0.625			
42		6	2.650	-0.757	2.770		1.050	-3.101	-0.050			
43		7										
44		8										

Fig. 6F3

Station 3

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	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
25	Facet	12									
26	x	y	z								
27	-0.616	0.000	0.788								
28		End									
29	x	y	z								
30	0.333	-0.476	0.814								
31	-0.284	-0.935	-0.211								
32	-0.487	0.316	0.814								
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

FIG. 6F4

Station 3

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SYB

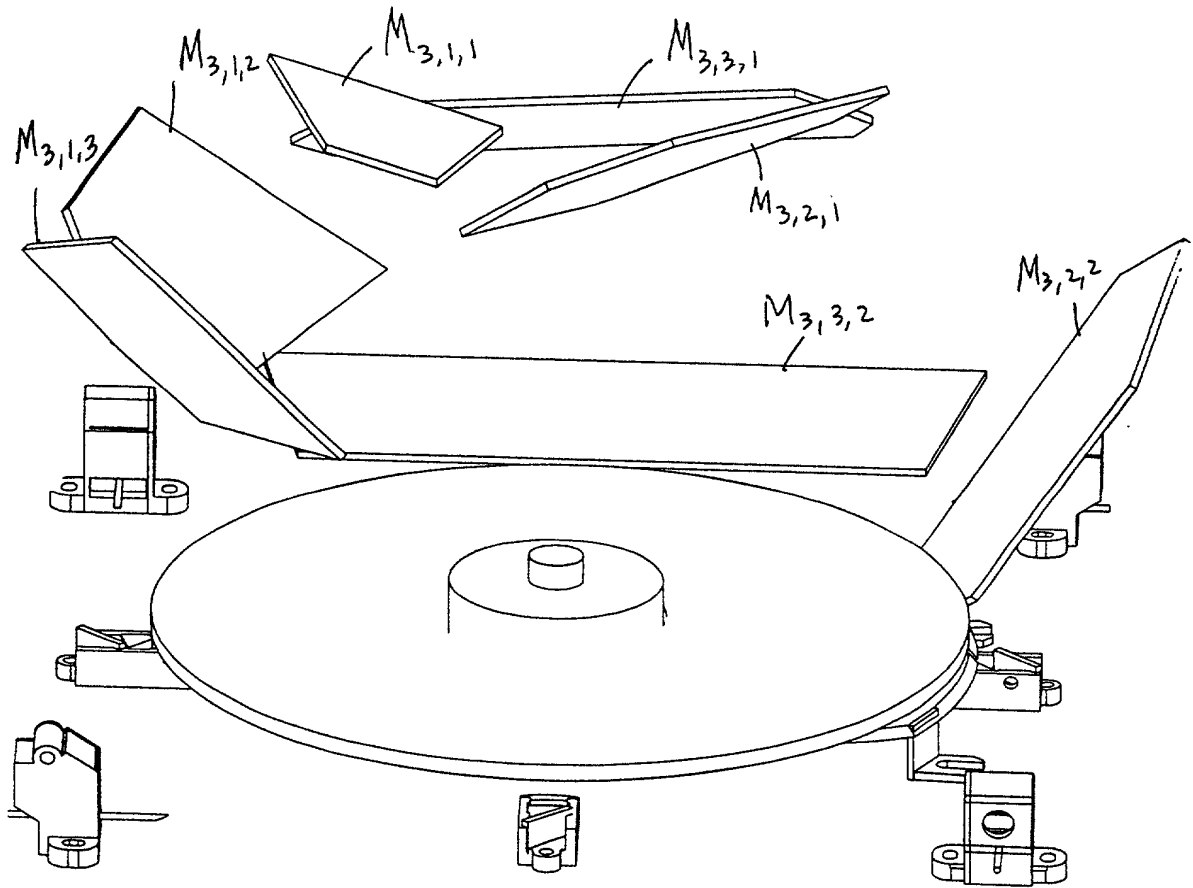


FIG. 6G1

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	N	O	P	Q	R	S	T	U	V	W	X
46	Facet	1									
47	x	y	z								
48	-0.616	0.000	0.788								
49		End				Middle				End	
50	x	y	z		x	y	z		x	y	z
51	0.753	-0.321	0.575		0.788	0.000	0.616		0.753	0.321	0.575
52	-0.366	-0.443	-0.819		-0.425	-0.132	-0.896		-0.421	0.193	-0.887
53	-0.574	-0.468	0.672		-0.653	-0.160	0.740		-0.648	0.165	0.743
54											
55											
56	Mirror 1 Corners					Mirror 2 Corners				Mirror 3 Corners	
57	x	y	z		x	y	z		x	y	z
58	4.250	-1.500	2.547		3.150	-2.450	0.030				
59	4.950	-2.000	2.029		4.500	-2.800	0.213				
60	5.150	-1.800	1.851		4.350	2.200	0.277				
61	5.000	1.800	1.656		3.050	1.850	0.089				
62	4.750	1.950	1.844								
63	4.100	1.500	2.405								
64											
65											

FIG. 692

Station 3

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	A	B	C	D	E	F	G	H	I	J	K	L
46	Low Elevation	Facet	2									
47	(G3)	x	y	z								
48	Vector from Module	-0.616	0.000	0.788								
49			End									
50		x	y	z								
51	Output Vectors From Disk	0.734	-0.305	0.607								
52	First Mirror Reflected Directions	-0.402	-0.429	-0.809								
53	Second Mirror Reflected Directions	-0.607	-0.454	0.653								
54	Third Mirror Reflected Directions											
55												
56												
57		x	y	z								
58	1	4.250	-1.500	2.547								
59	2	4.950	-2.000	2.029								
60	3	5.150	-1.800	1.851								
61	4	5.000	1.800	1.656								
62	5	4.750	1.950	1.844								
63	6	4.100	1.500	2.405								
64	7											
65	8											
66												

Fig. 6G3

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443
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FIG. 6G4

Station 3

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	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV
46	Facet	4									
47	x	y	z								
48	-0.616	0.000	0.788								
49	End			Middle			End				
50	x	y	z		x	y	z		x	y	z
51	0.692	-0.275	0.667		0.719	0.000	0.695		0.686	0.307	0.660
52	-0.472	-0.402	-0.784		-0.517	-0.135	-0.846		-0.516	0.176	-0.838
53	-0.667	-0.426	0.611		-0.728	-0.161	0.666		-0.727	0.151	0.670
54											
55											
56	Mirror 1 Corners			Mirror 2 Corners			Mirror 3 Corners				
57	x	y	z		x	y	z		x	y	z
58	4.250	-1.500	2.547		3.150	-2.450	0.030				
59	4.950	-2.000	2.029		4.500	-2.800	0.213				
60	5.150	-1.800	1.851		4.350	2.200	0.277				
61	5.000	1.800	1.656		3.050	1.850	0.089				
62	4.750	1.950	1.844								
63	4.100	1.500	2.405								
64											
65											

Fig. 645

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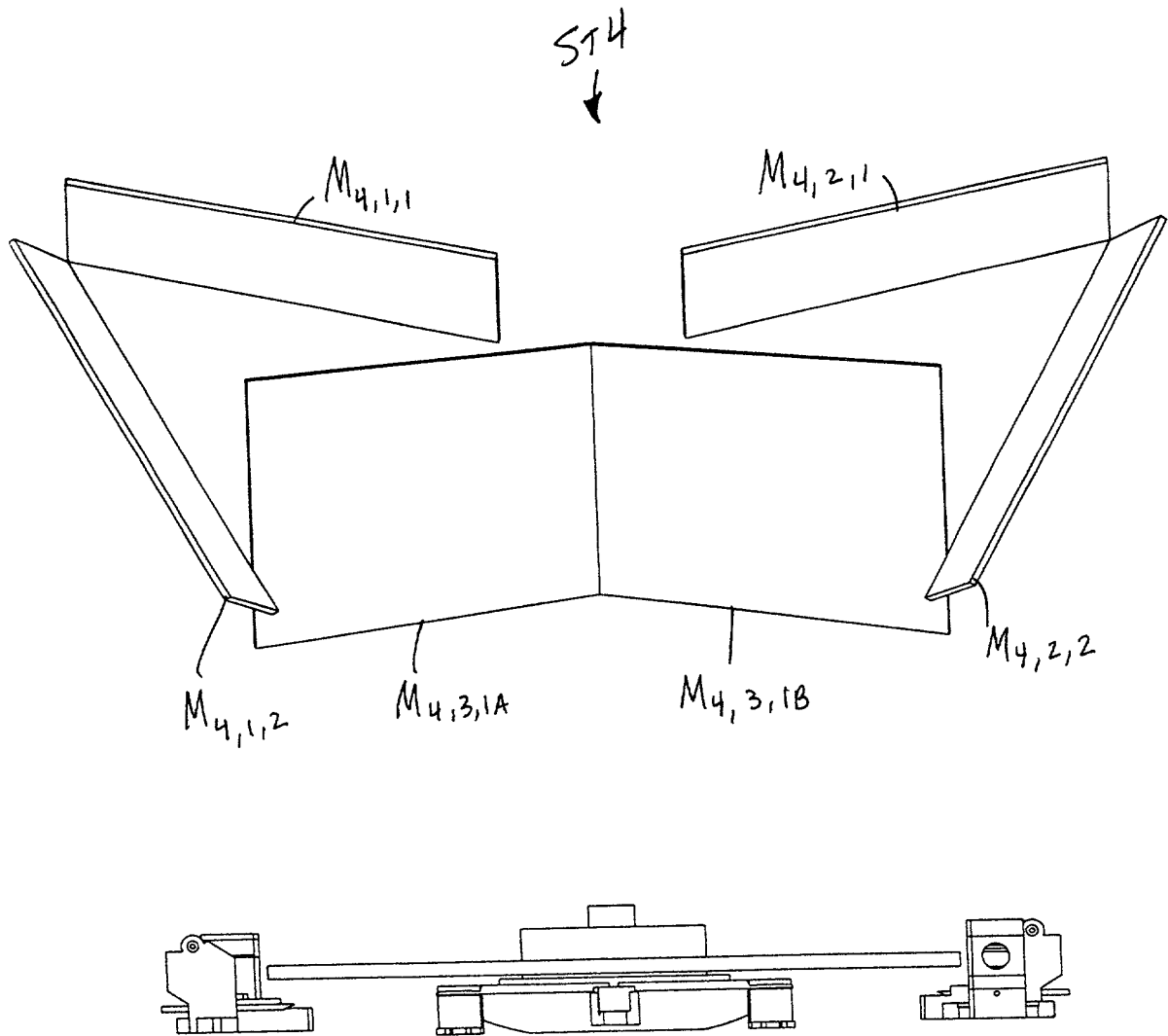


FIG. 6H1

$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

FIG. 6H3

Station 4

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	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1											
2											
3											
4	Facet	11									
5	x	y	z								
6	-0.616	0.000	0.788								
7		End									
8	x	y	z								
9	0.332	0.478	0.813								
10	-0.482	0.741	-0.467								
11	-0.773	-0.526	0.356								
12											
13											
14											
15	x	y	z								
16	4.900	0.800	6.409								
17	6.100	0.800	5.645								
18	6.000	4.500	6.468								
19	4.900	4.500	7.168								
20											
21											
22											
23											
24											

FIG. 6H4

Station 4

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5TH

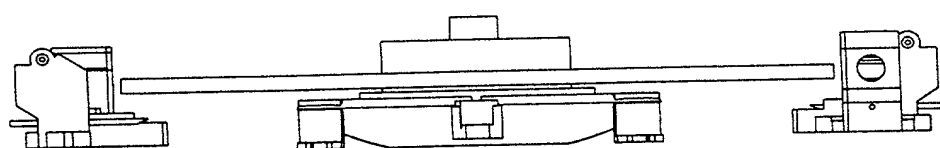
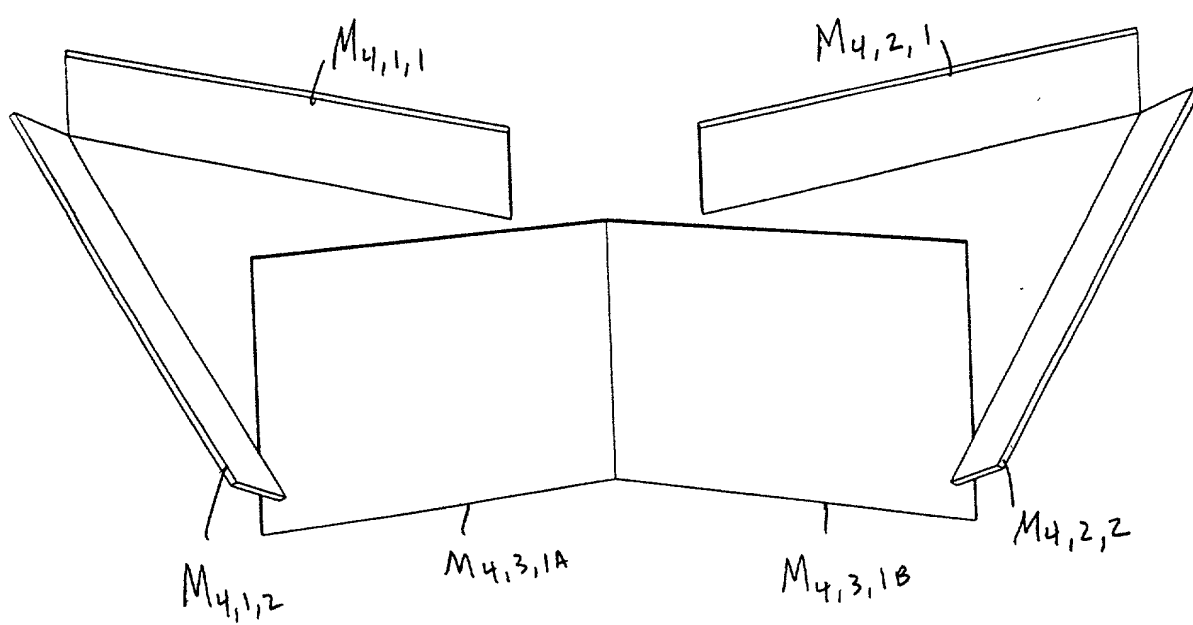


FIG. 6I1

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	N	O	P	Q	R	S	T	U	V	W	X
25 Facet		8									
26	x	y	z								
27	-0.616	0.000	0.788								
28	End			Middle			End				
29	x	y	z	x	y	z	x	y	z		
30	0.481	-0.180	0.858	0.468	-0.249	0.848	0.399	-0.468	0.789		
31	-0.511	-0.500	-0.700	-0.495	-0.559	-0.665	-0.433	-0.736	-0.519		
32	-0.771	0.636	0.038	-0.768	0.631	0.108	-0.737	0.585	0.339		
33											
34	Mirror 1 Corners			Mirror 2 Corners			Mirror 3 Corners				
35	x	y	z	x	y	z	x	y	z		
36	4.900	-0.800	6.409	2.850	-3.200	3.370					
37	6.100	-0.800	5.645	4.200	-2.800	3.231					
38	6.000	-4.500	6.468	5.950	-4.500	6.464					
39	4.900	-4.500	7.168	4.600	-4.950	6.680					
40											
41											
42											
43											
44											

FIG. 6I2

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A		B	C	D	E	F	G	H	I	J	K	L
25	High Elevation Right Skew	Facet	10									
26		x	y	z								
27	Vector from Module	-0.616	0.000	0.788								
28		End			Middle			End				
29		x	y	z	x	y	z	x	y	z		
30	Output Vectors From Disk	0.452	-0.177	0.874	0.441	-0.235	0.866	0.366	-0.474	0.801		
31	First Mirror Reflected Directions	-0.538	-0.496	-0.681	-0.525	-0.546	-0.653	-0.458	-0.739	-0.494		
32	Second Mirror Reflected Directions	-0.792	0.610	0.037	-0.789	0.606	0.096	-0.755	0.556	0.348		
33	Third Mirror Reflected Directions											
34		Mirror 1 Corners			Mirror 2 Corners			Mirror 3 Corners				
35		x	y	z	x	y	z	x	y	z		
36		1	4.900	-0.800	6.409	2.850	-3.200	3.370				
37		2	6.100	-0.800	5.645	4.200	-2.800	3.231				
38		3	6.000	-4.500	6.468	5.950	-4.500	6.464				
39		4	4.900	-4.500	7.168	4.600	-4.950	6.680				
40		5										
41		6										
42		7										
43		8										
44												

F14. 6I3

	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
25	Facet	12									
26	x	y	z								
27	-0.616	0.000	0.788								
28		End									
29	x	y	z								
30	0.422	-0.176	0.889								
31	-0.564	-0.494	-0.661								
32	-0.811	0.583	0.039								
33											
34											
35		Mirror 1 Corners									
36	x	y	z								
37	4.900	-0.800	6.409								
38	6.100	-0.800	5.645								
39	6.000	-4.500	6.468								
40	4.900	-4.500	7.168								
41											
42											
43											
44											

FIG. 6I4

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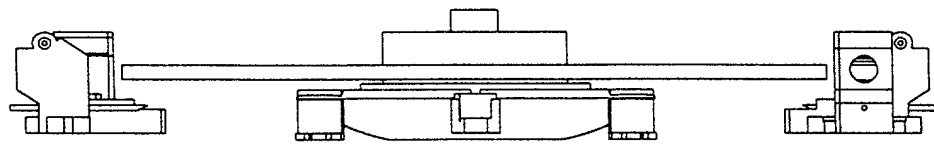
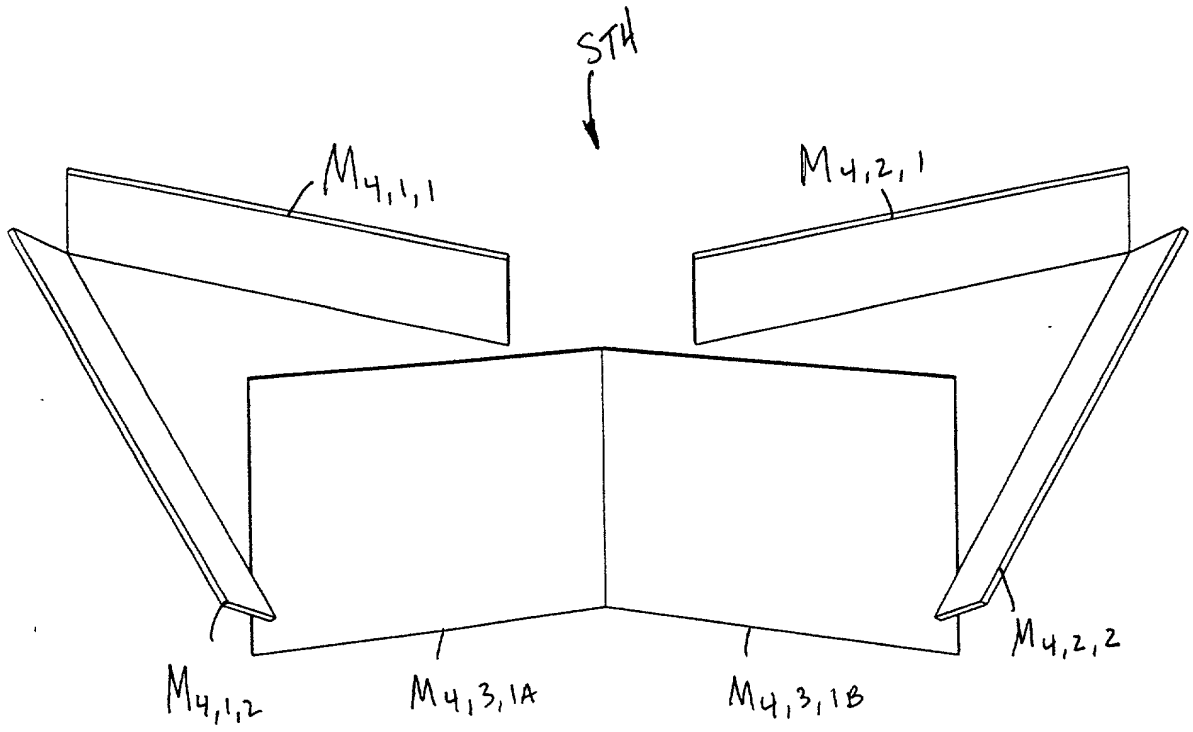


FIG. 6J1

1. The first three corners of the facet are numbered 1, 2, and 3. The fourth corner is numbered 4. The fifth corner is numbered 5. The sixth corner is numbered 6. The seventh corner is numbered 7. The eighth corner is numbered 8. The ninth corner is numbered 9. The tenth corner is numbered 10. The eleventh corner is numbered 11. The twelfth corner is numbered 12. The thirteenth corner is numbered 13. The fourteenth corner is numbered 14. The fifteenth corner is numbered 15. The sixteenth corner is numbered 16. The seventeenth corner is numbered 17. The eighteenth corner is numbered 18. The nineteenth corner is numbered 19. The twentieth corner is numbered 20. The twenty-first corner is numbered 21. The twenty-second corner is numbered 22. The twenty-third corner is numbered 23. The twenty-fourth corner is numbered 24. The twenty-fifth corner is numbered 25. The twenty-sixth corner is numbered 26. The twenty-seventh corner is numbered 27. The twenty-eighth corner is numbered 28. The twenty-ninth corner is numbered 29. The thirtieth corner is numbered 30. The thirty-first corner is numbered 31. The thirty-second corner is numbered 32. The thirty-third corner is numbered 33. The thirty-fourth corner is numbered 34. The thirty-fifth corner is numbered 35. The thirty-sixth corner is numbered 36. The thirty-seventh corner is numbered 37. The thirty-eighth corner is numbered 38. The thirty-ninth corner is numbered 39. The fortieth corner is numbered 40. The forty-first corner is numbered 41. The forty-second corner is numbered 42. The forty-third corner is numbered 43. The forty-fourth corner is numbered 44. The forty-fifth corner is numbered 45. The forty-sixth corner is numbered 46. The forty-seventh corner is numbered 47. The forty-eighth corner is numbered 48. The forty-ninth corner is numbered 49. The fiftieth corner is numbered 50. The fifty-first corner is numbered 51. The fifty-second corner is numbered 52. The fifty-third corner is numbered 53. The fifty-fourth corner is numbered 54. The fifty-fifth corner is numbered 55. The fifty-sixth corner is numbered 56. The fifty-seventh corner is numbered 57. The fifty-eighth corner is numbered 58. The fifty-ninth corner is numbered 59. The sixtieth corner is numbered 60. The sixty-first corner is numbered 61. The sixty-second corner is numbered 62. The sixty-third corner is numbered 63. The sixty-fourth corner is numbered 64. The sixty-fifth corner is numbered 65. The sixty-sixth corner is numbered 66.

	N	O	P	Q	R	S	T	U	V	W	X
46	Facet	1									
47	x	y	z								
48	-0.616	0.000	0.788								
49		End									
50	x	y	z								
51	0.788	0.001	0.616								
52	-0.938	0.335	0.087								
53											
54											
55											
56		Mirror 1 Corners									
57	x	y	z								
58	6.700	0.000	5.608								
59	7.400	0.000	3.322								
60	6.950	-3.000	2.897								
61	6.200	-3.000	5.345								
62											
63											
64											
65											
66											

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335

FIG. 6J2

[illegible]

FIG. 6J3

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	A	B	C	D	E	F	G	H	I	J	K	L
46	Low Elevation	Facet	3									
47		x	y	z								
48	Vector from Module	-0.616	0.000	0.788								
49			End									
50		x	y	z								
51	Output Vectors From Disk	0.743	0.000	0.669								
52	First Mirror Reflected Directions	-0.933	0.324	0.156								
53	Second Mirror Reflected Directions											
54	Third Mirror Reflected Directions											
55												
56			Mirror 1 Corners									
57		x	y	z								
58		1	6.700	0.000	5.608							
59		2	7.400	0.000	3.322							
60		3	6.950	-3.000	2.897							
61		4	6.200	-3.000	5.345							
62		5										
63		6										
64		7										
65		8										
66												

FIG. 6J4

1. The first step is to determine the coordinates of the vertices of the polygon. In this case, the vertices are labeled A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z.

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	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV
46	Facet	4									
47	x	y	z								
48	-0.616	0.000	0.788								
49	End			Middle			End				
50	x	y	z		x	y	z		x	y	z
51	0.719	0.000	0.695		0.719	0.000	0.695		0.664	-0.395	0.635
52	-0.929	0.319	0.190		-0.929	0.319	0.190		-0.989	-0.075	0.129
53											
54											
55	Mirror 1 Corners			Mirror 2 Corners			Mirror 3 Corners				
56	x	y	z		x	y	z		x	y	z
57	6.700	0.000	5.608								
58	7.400	0.000	3.322								
59	6.950	-3.000	2.897								
60	6.200	-3.000	5.345								
61											
62											
63											
64											
65											
66											

FIG. 6J5

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	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH
46	Facet	5									
47	x	y	z								
48	-0.616	0.000	0.788								
49		End				Middle				End	
50	x	y	z			x	y	z	x	y	z
51	0.669	0.000	0.743			0.669	0.000	0.743	0.621	-0.362	0.695
52	-0.916	0.307	0.257			-0.916	0.307	0.257	-0.977	-0.052	0.206
53											
54											
55											
56		Mirror 1 Corners								Mirror 3 Corners	
57	x	y	z			x	y	z	x	y	z
58	6.700	0.000	5.608								
59	7.400	0.000	3.322								
60	6.950	-3.000	2.897								
61	6.200	-3.000	5.345								
62											
63											
64											
65											

FIG. 6J6

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	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU
46	Facet	6										
47	x	y	z									
48	-0.616	0.000	0.788									
49		End								End		
50	x	y	z									
51	0.616	0.000	0.788									
52	-0.900	0.293	0.324									
53												
54												
55												
56		Mirror 1 Corners										
57	x	y	z									
58	6.700	0.000	5.608									
59	7.400	0.000	3.322									
60	6.950	-3.000	2.897									
61	6.200	-3.000	5.345									
62												
63												
64												
65												

FIG. 6J7

Station 4

Figure 60K shows the relationship between the time of day and the number of facets observed at each scanning station.

Facet Relationships VS Time

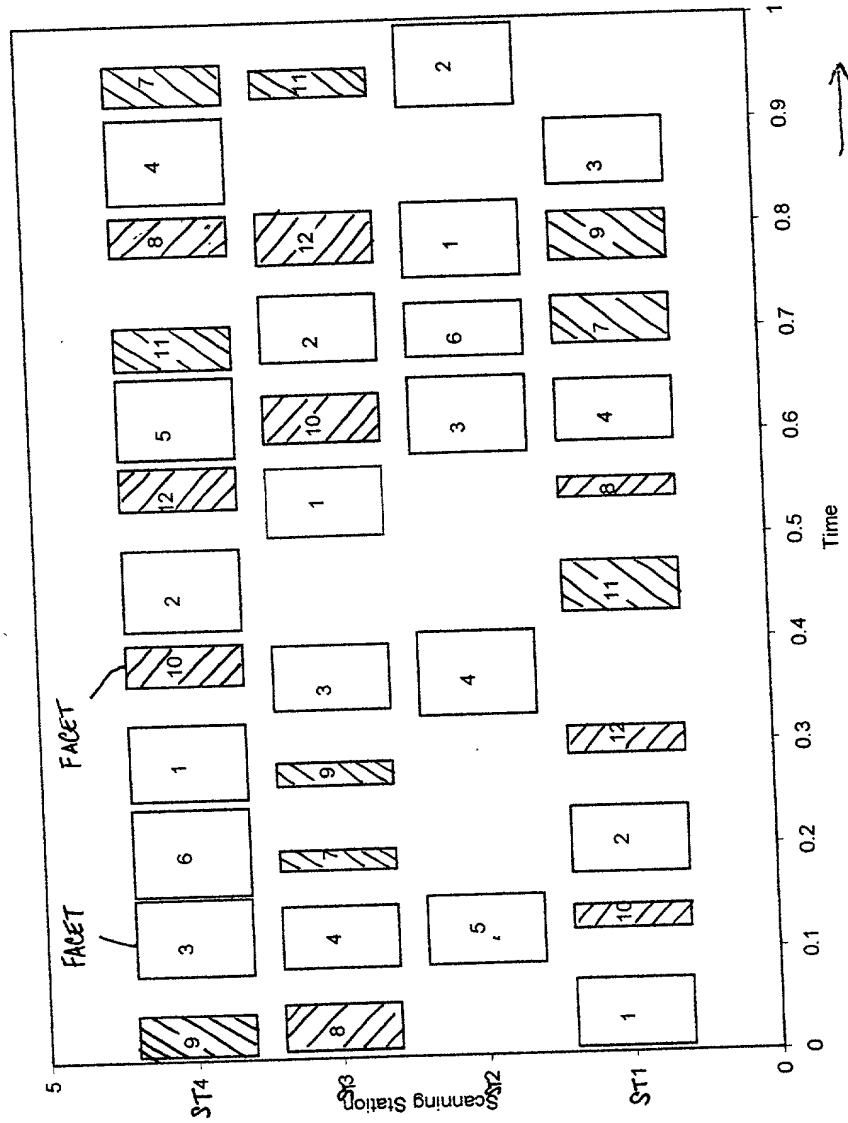


FIG. 60K

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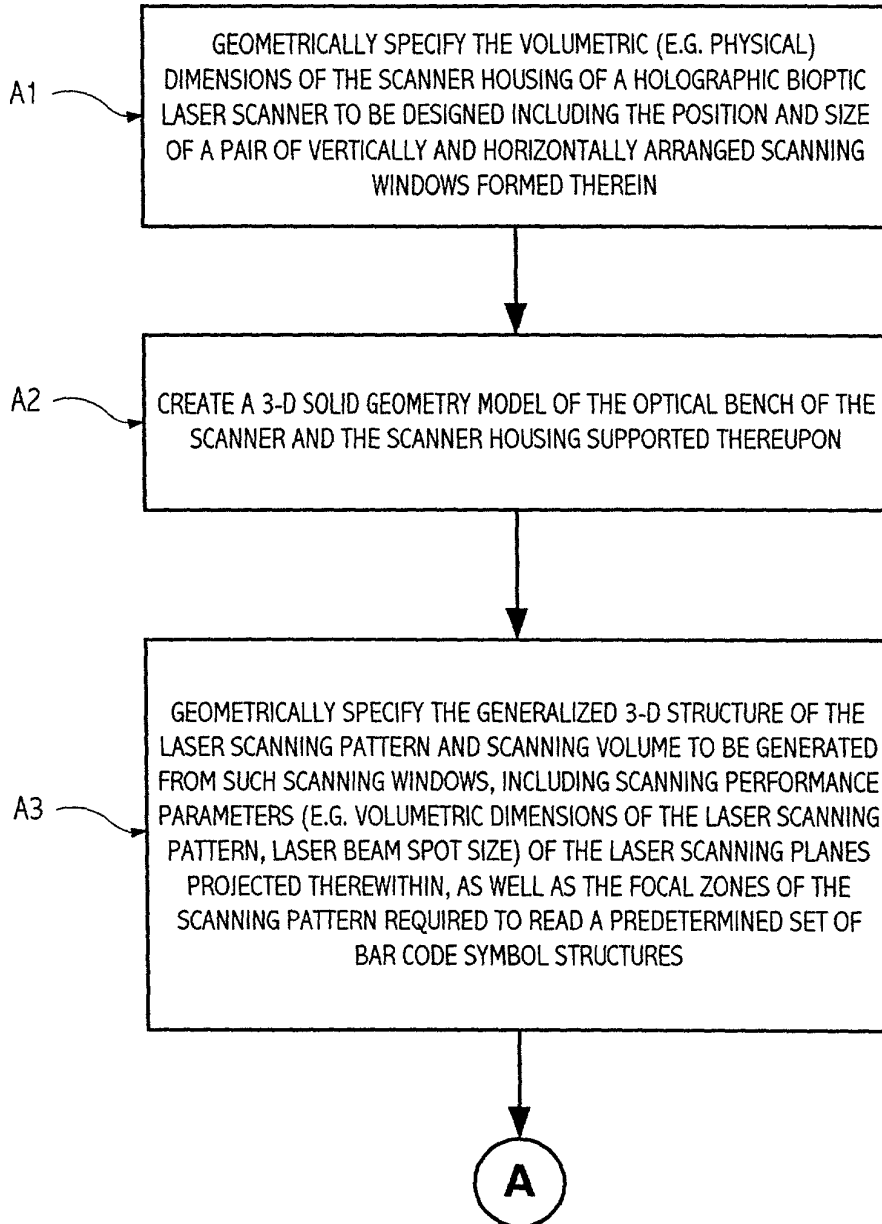


FIG. 7A

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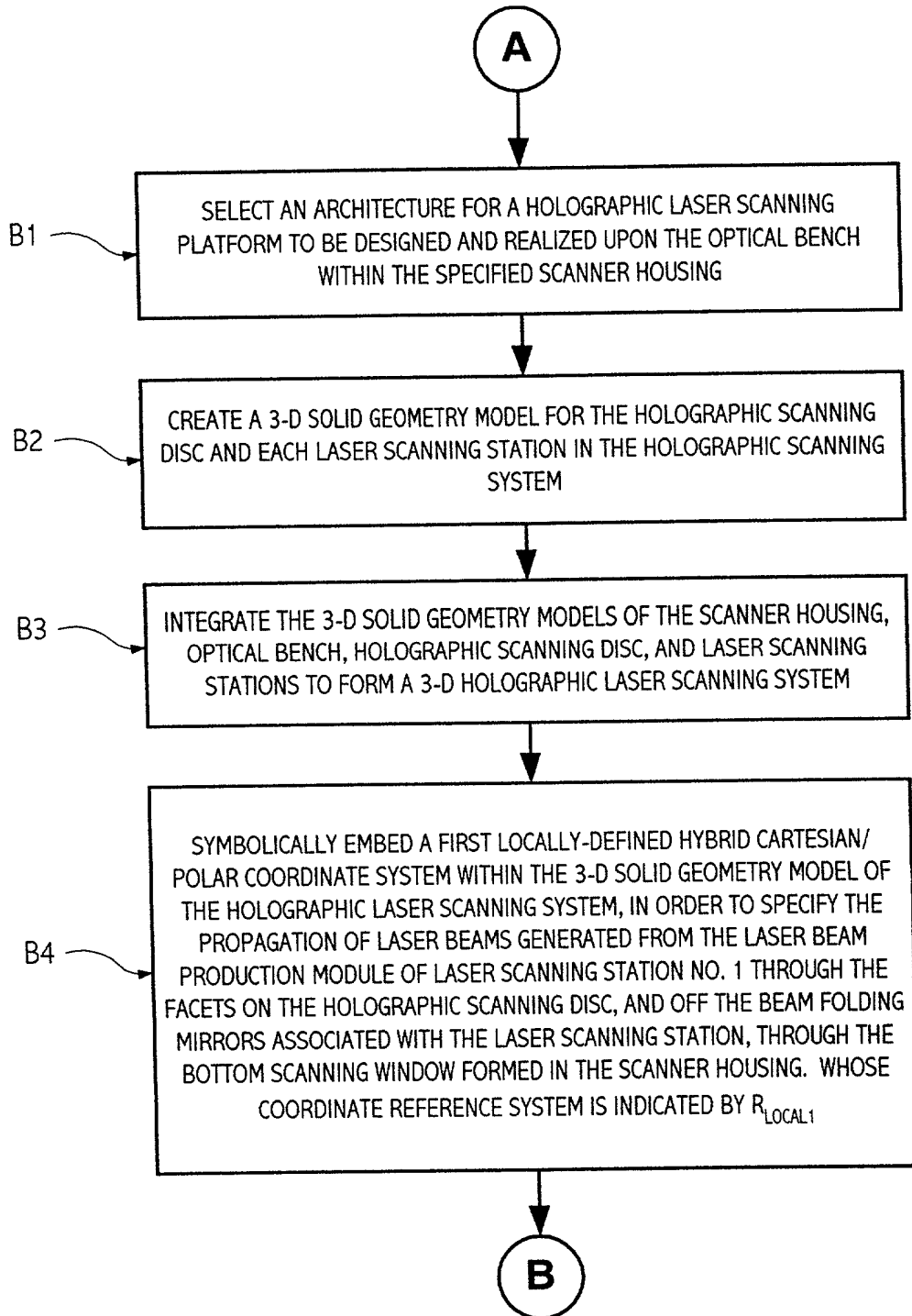


FIG. 7B

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B

B5

SYMBOLICALLY EMBED A SECOND LOCALLY-DEFINED HYBRID CARTESIAN/
POLAR COORDINATE SYSTEM WITHIN THE 3-D SOLID GEOMETRY MODEL OF
THE HOLOGRAPHIC LASER SCANNING SYSTEM, IN ORDER TO SPECIFY THE
PROPAGATION OF LASER BEAMS GENERATED FROM THE LASER BEAM
PRODUCTION MODULE OF LASER SCANNING STATION NO. 2 THROUGH THE
FACETS ON THE HOLOGRAPHIC SCANNING DISC, AND OFF THE BEAM FOLDING
MIRRORS ASSOCIATED WITH THE LASER SCANNING STATION, THROUGH THE
BOTTOM SCANNING WINDOW FORMED IN THE SCANNER HOUSING. WHOSE
COORDINATE REFERENCE SYSTEM IS INDICATED BY R_{LOCAL2}

B6

SYMBOLICALLY EMBED A THIRD LOCALLY-DEFINED HYBRID CARTESIAN/
POLAR COORDINATE SYSTEM WITHIN THE 3-D SOLID GEOMETRY MODEL OF THE
HOLOGRAPHIC LASER SCANNING SYSTEM, IN ORDER TO SPECIFY THE
PROPAGATION OF LASER BEAMS GENERATED FROM THE LASER BEAM
PRODUCTION MODULE OF LASER SCANNING STATION NO. 3 THROUGH THE
FACETS ON THE HOLOGRAPHIC SCANNING DISC, AND OFF THE BEAM FOLDING
MIRRORS ASSOCIATED WITH THE LASER SCANNING STATION, THROUGH THE
SIDE SCANNING WINDOW FORMED IN THE SCANNER HOUSING. WHOSE
COORDINATE REFERENCE SYSTEM IS INDICATED BY R_{LOCAL3}

B7

SYMBOLICALLY EMBED A FOURTH LOCALLY-DEFINED HYBRID CARTESIAN/
POLAR COORDINATE SYSTEM WITHIN THE 3-D SOLID GEOMETRY MODEL OF
THE HOLOGRAPHIC LASER SCANNING SYSTEM, IN ORDER TO SPECIFY THE
PROPAGATION OF LASER BEAMS GENERATED FROM THE LASER BEAM
PRODUCTION MODULE OF LASER SCANNING STATION NO. 4 THROUGH THE
FACETS ON THE HOLOGRAPHIC SCANNING DISC, AND OFF THE BEAM FOLDING
MIRRORS ASSOCIATED WITH THE LASER SCANNING STATION, THROUGH THE
SIDE SCANNING WINDOW FORMED IN THE SCANNER HOUSING. WHOSE
COORDINATE REFERENCE SYSTEM IS INDICATED BY R_{LOCAL4}

C

FIG. 7C

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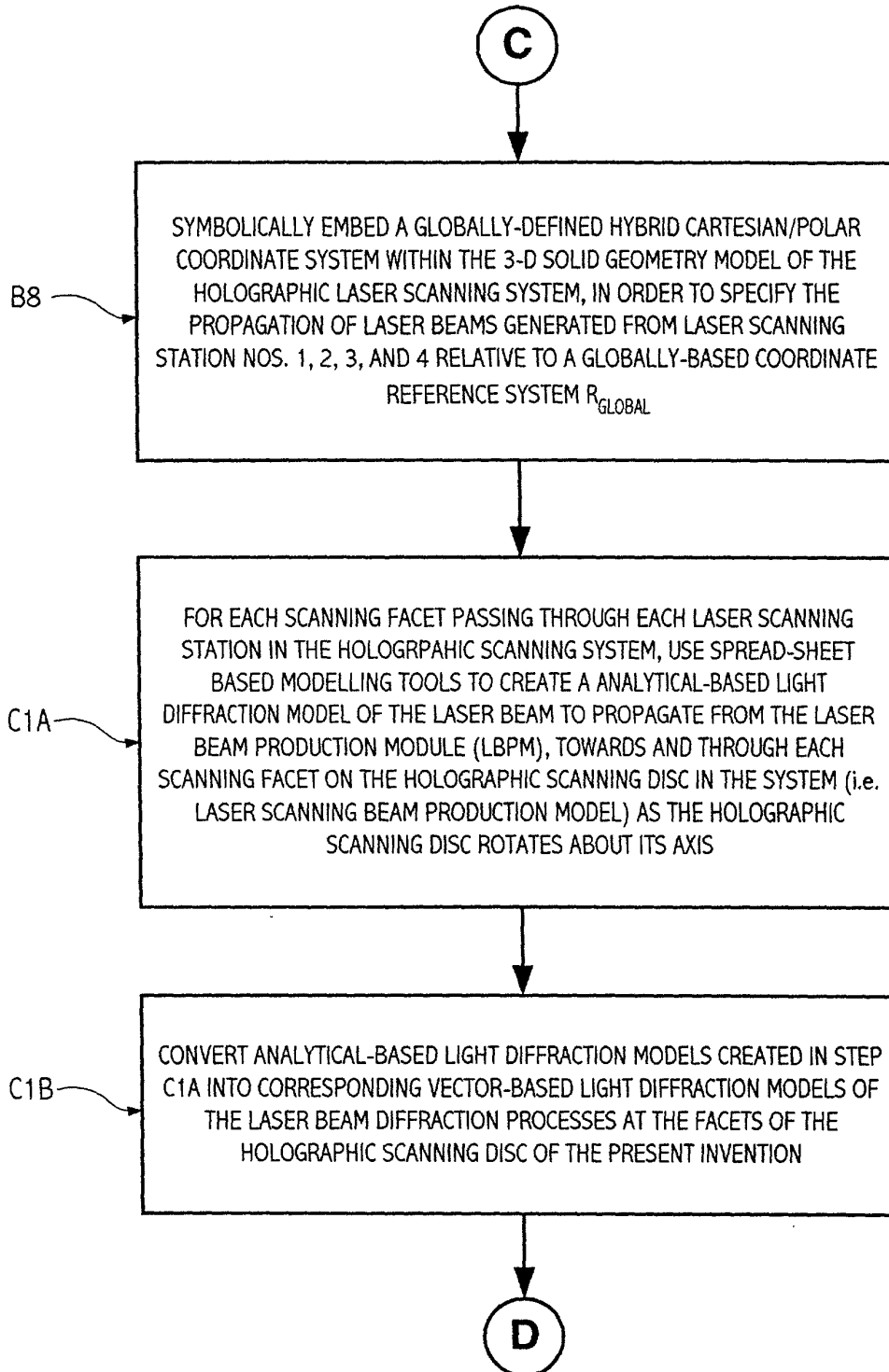


FIG. 7D

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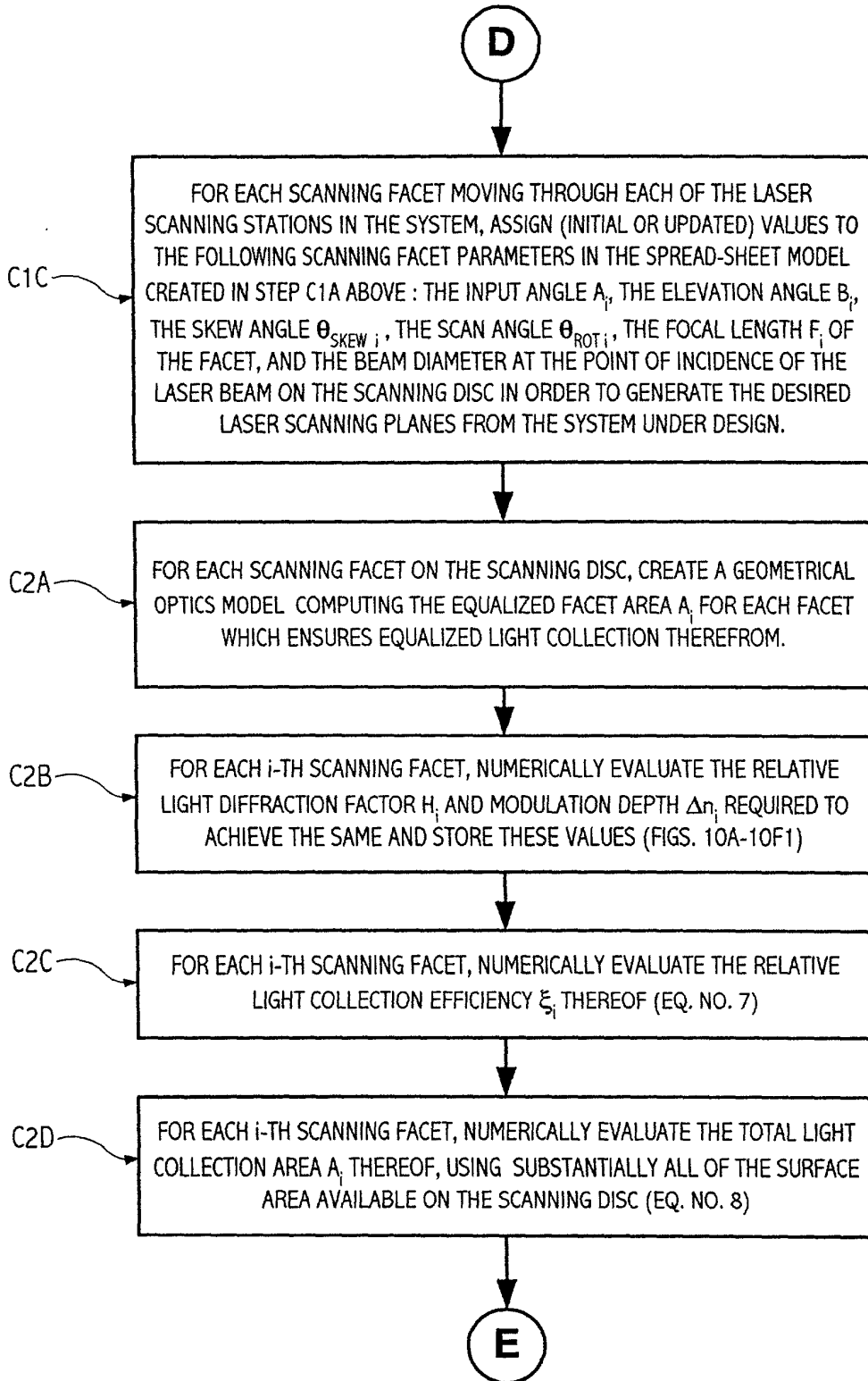


FIG. 7E

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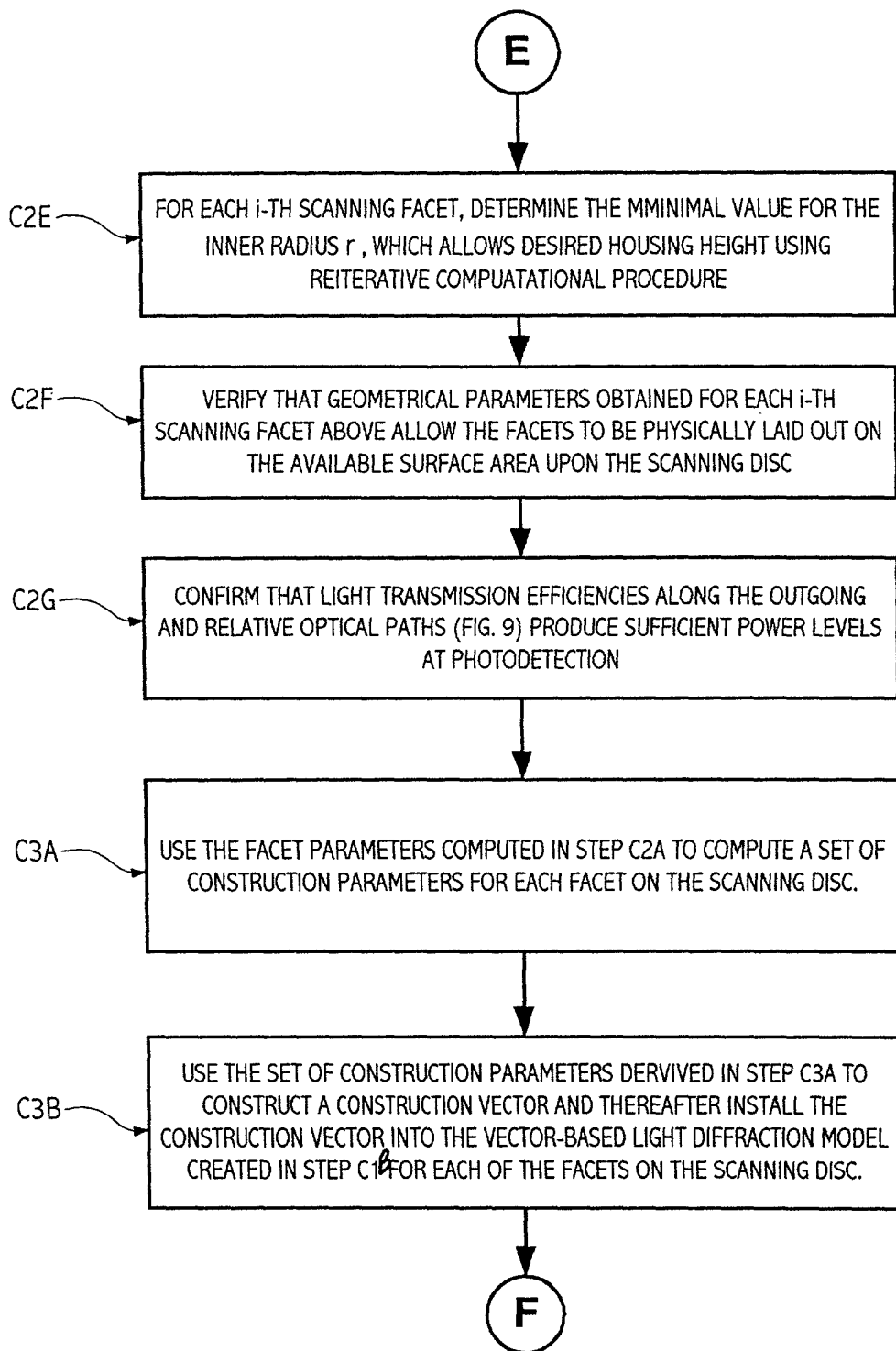


FIG. 7F

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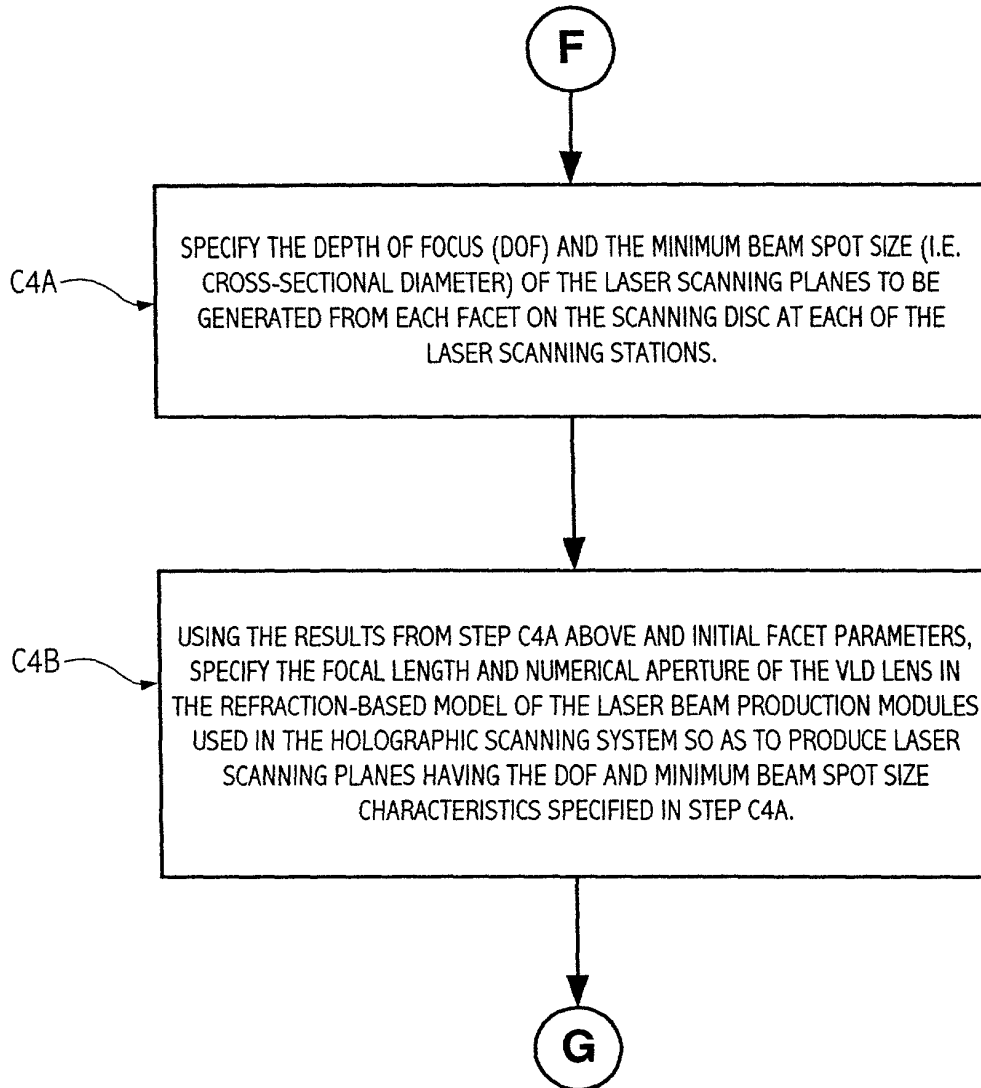


FIG. 7G

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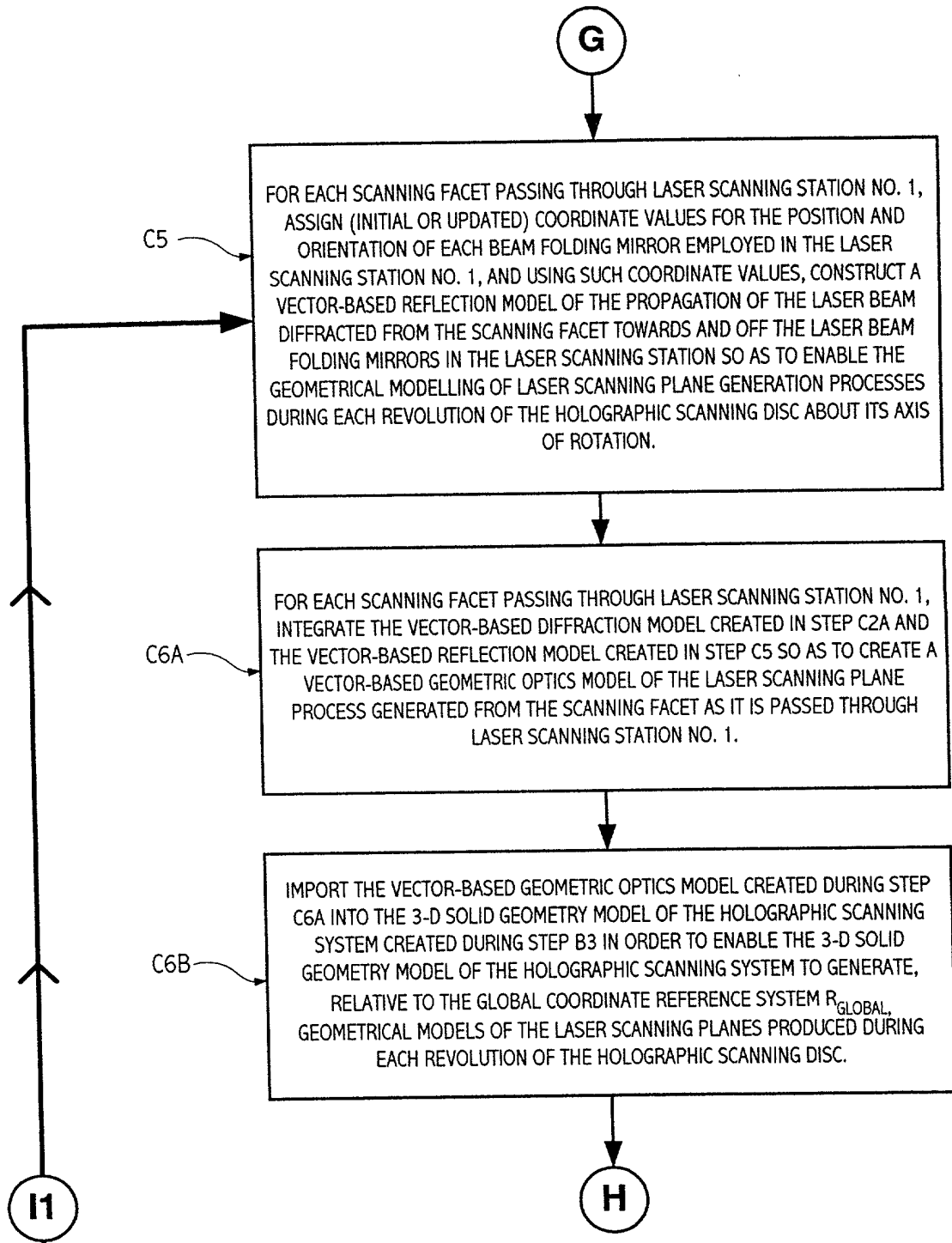


FIG. 7H

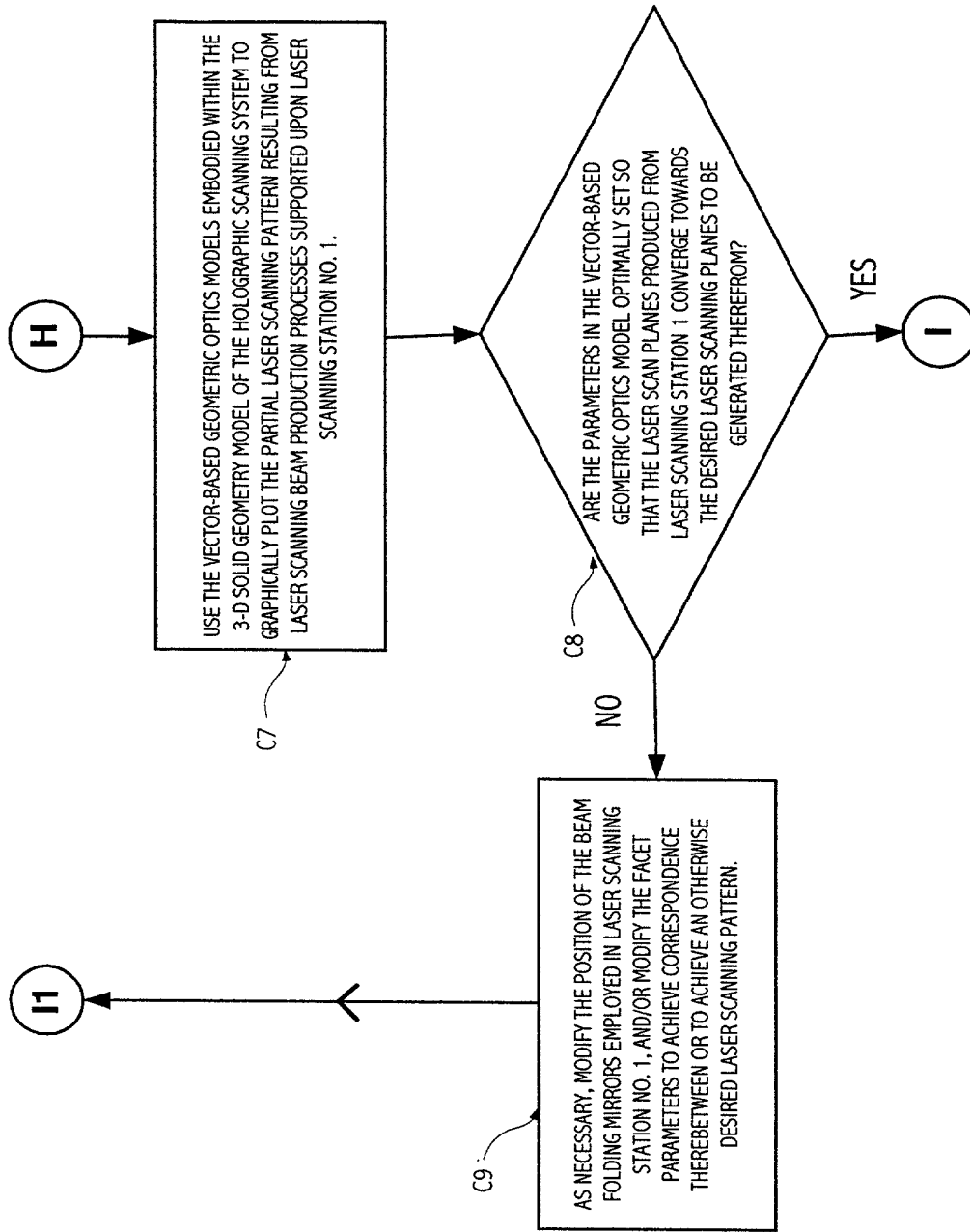


FIG. 71

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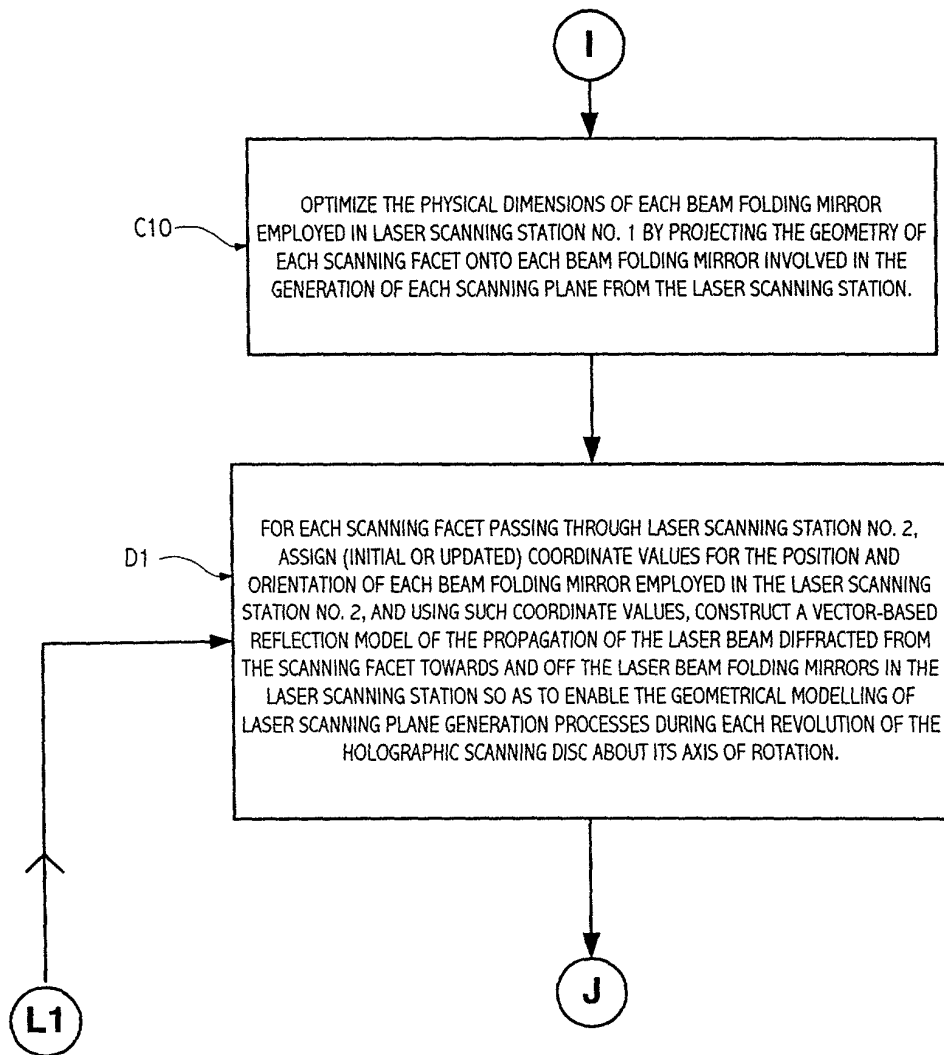


FIG. 7J

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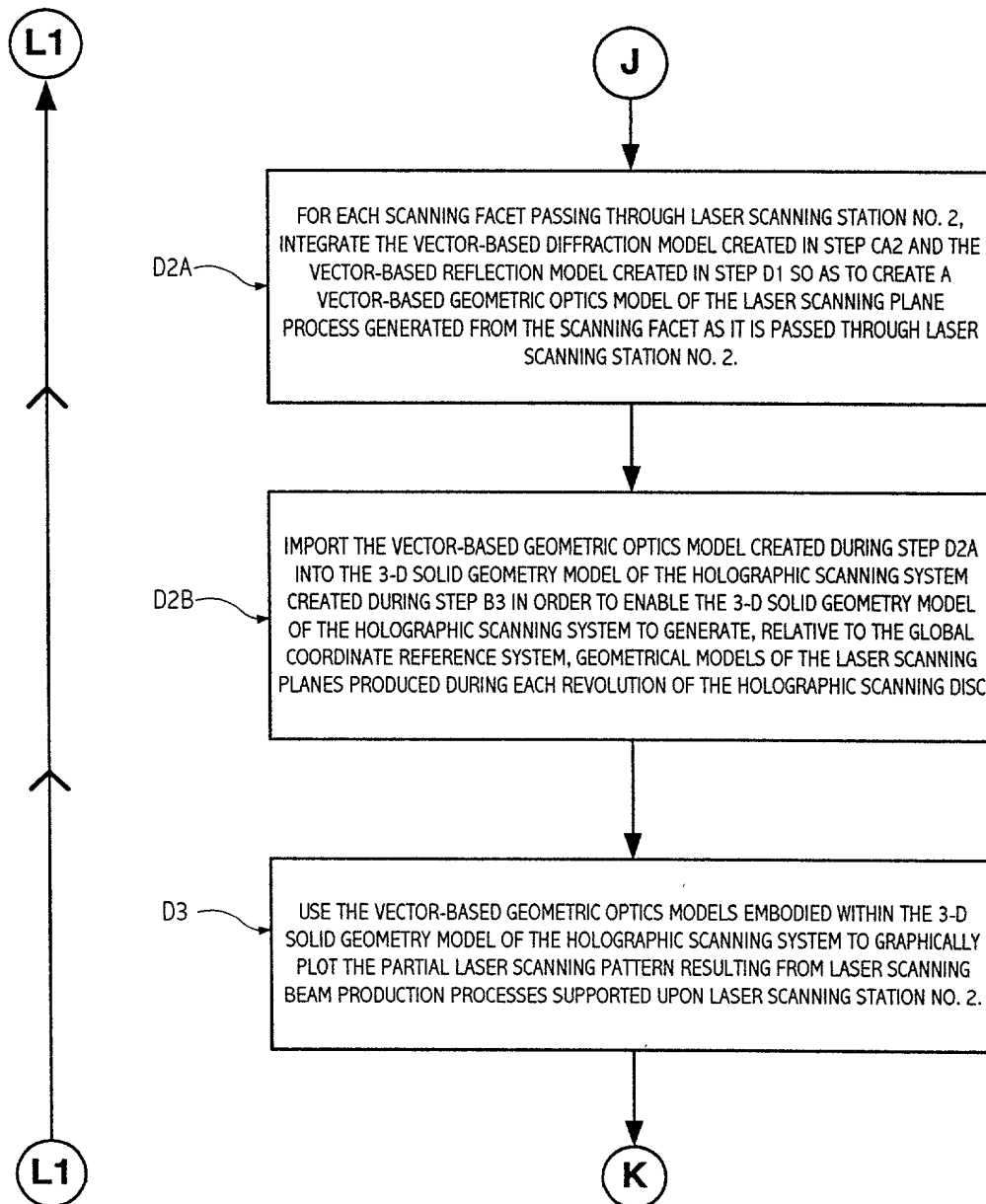


FIG. 7K

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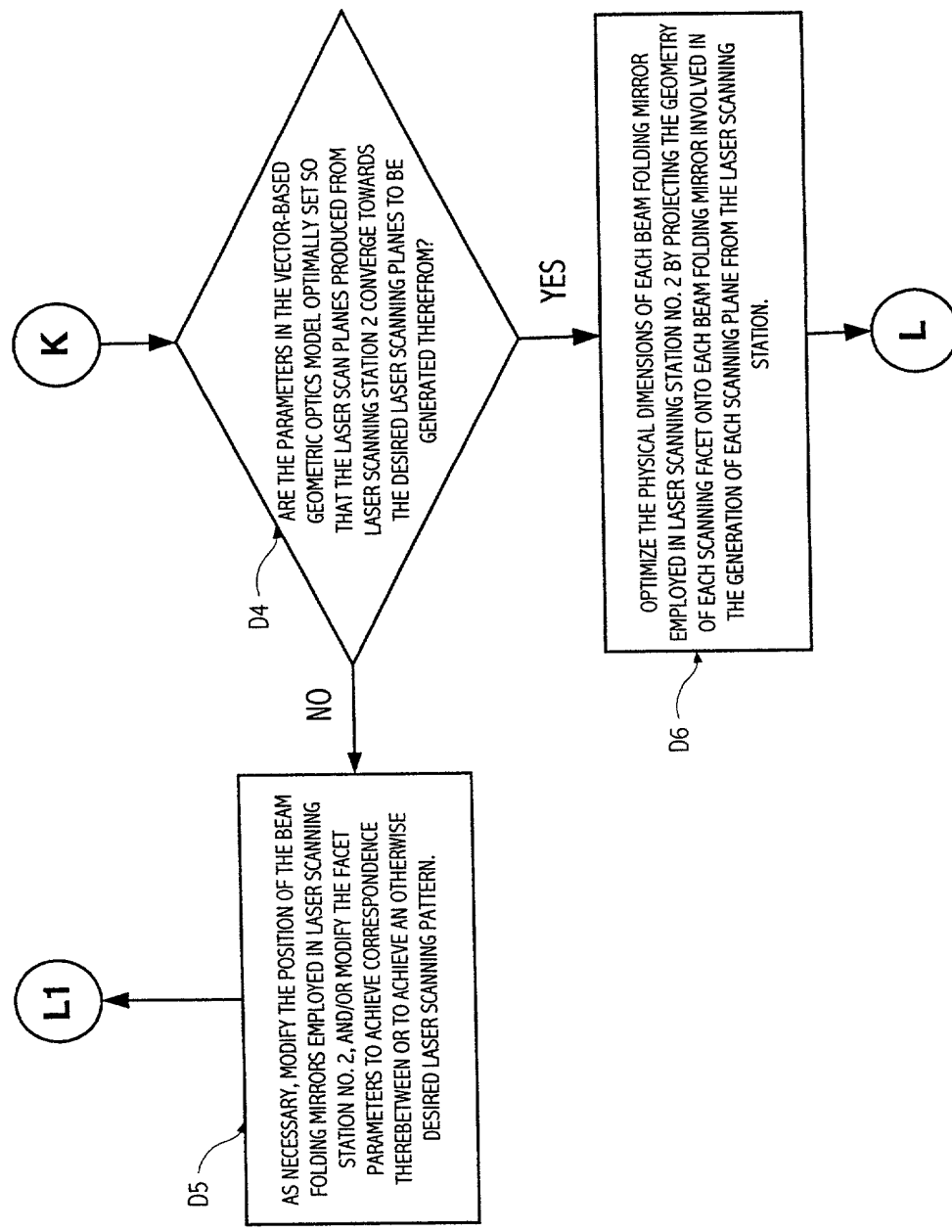


FIG. 7L

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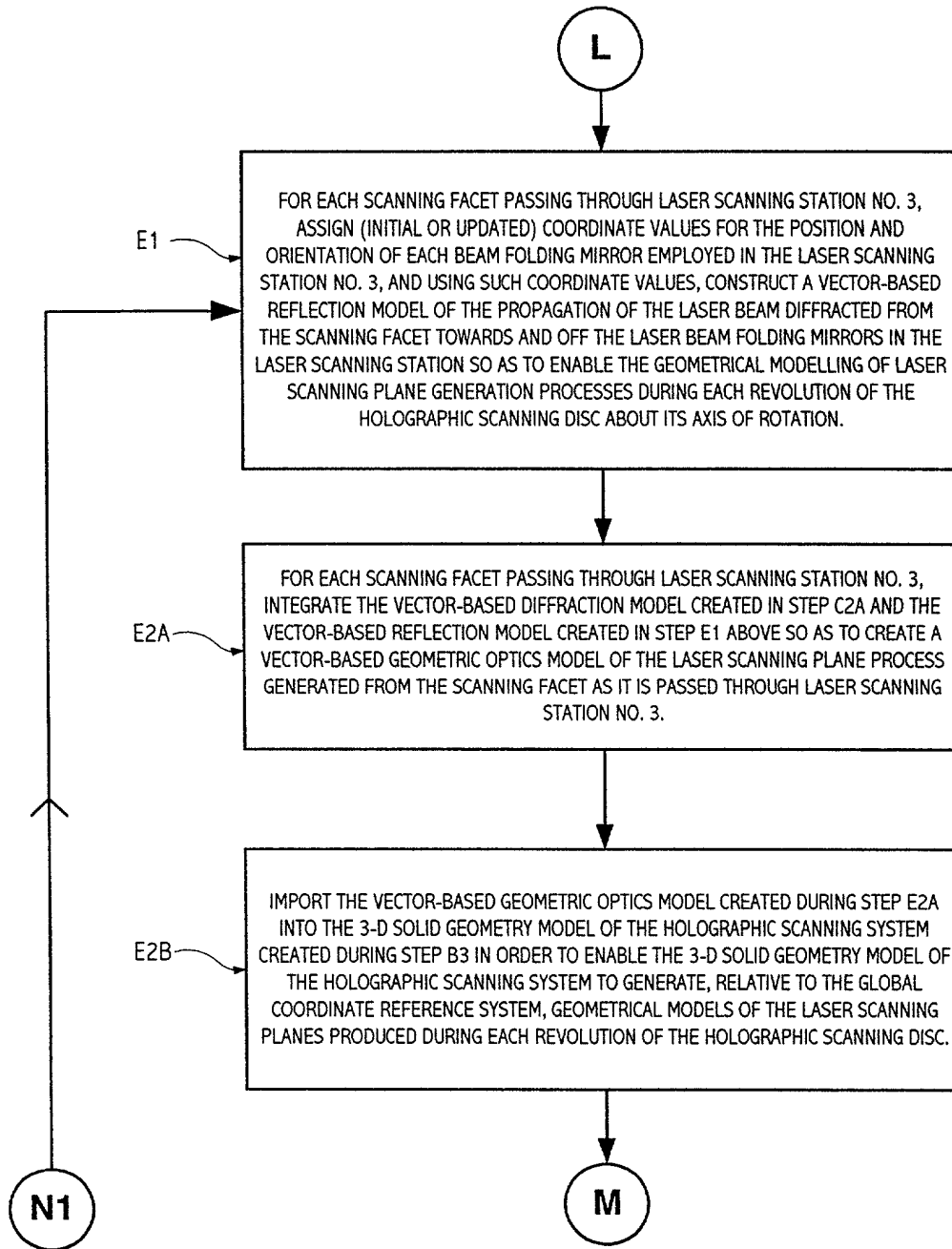


FIG. 7M

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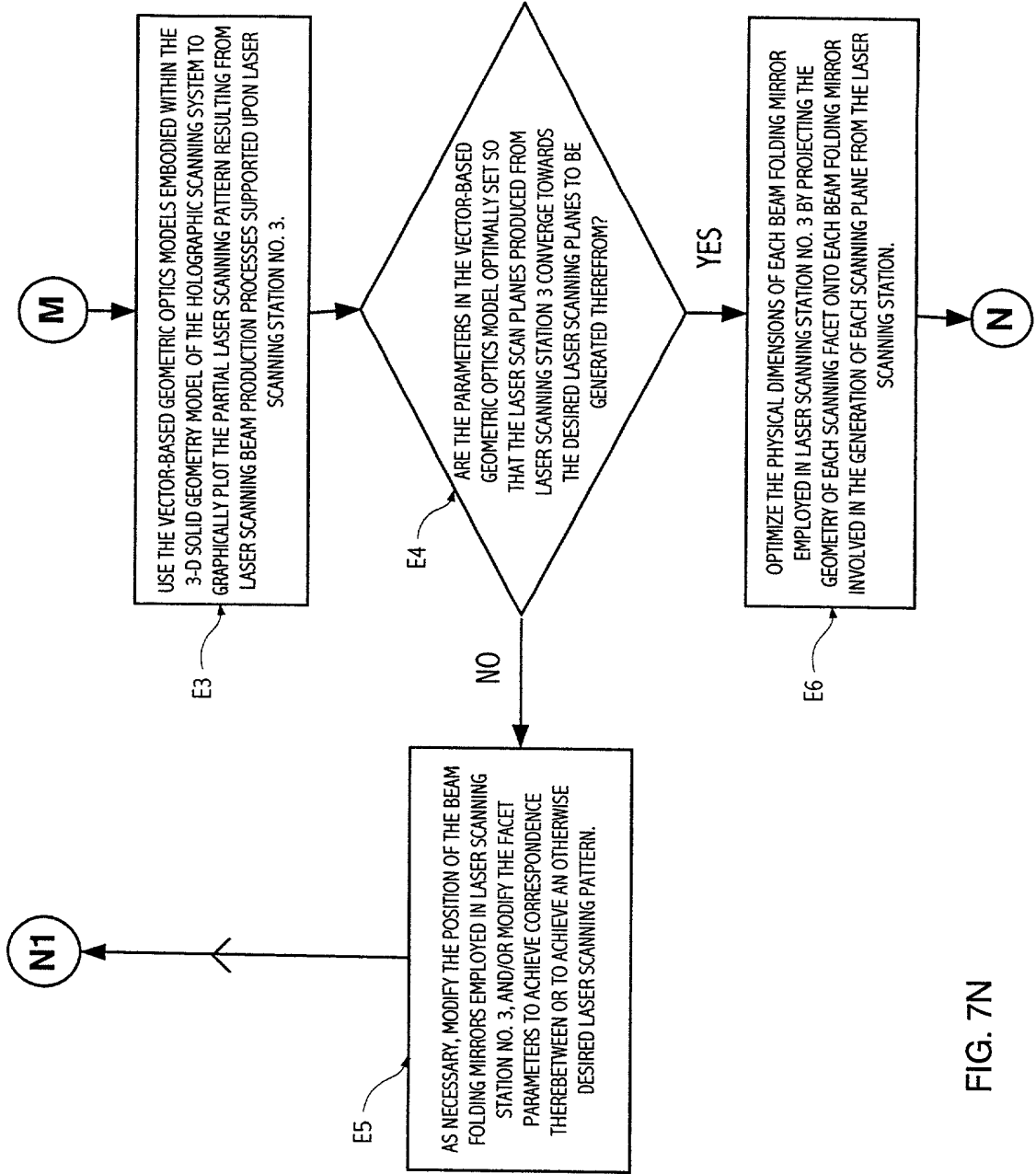


FIG. 7N

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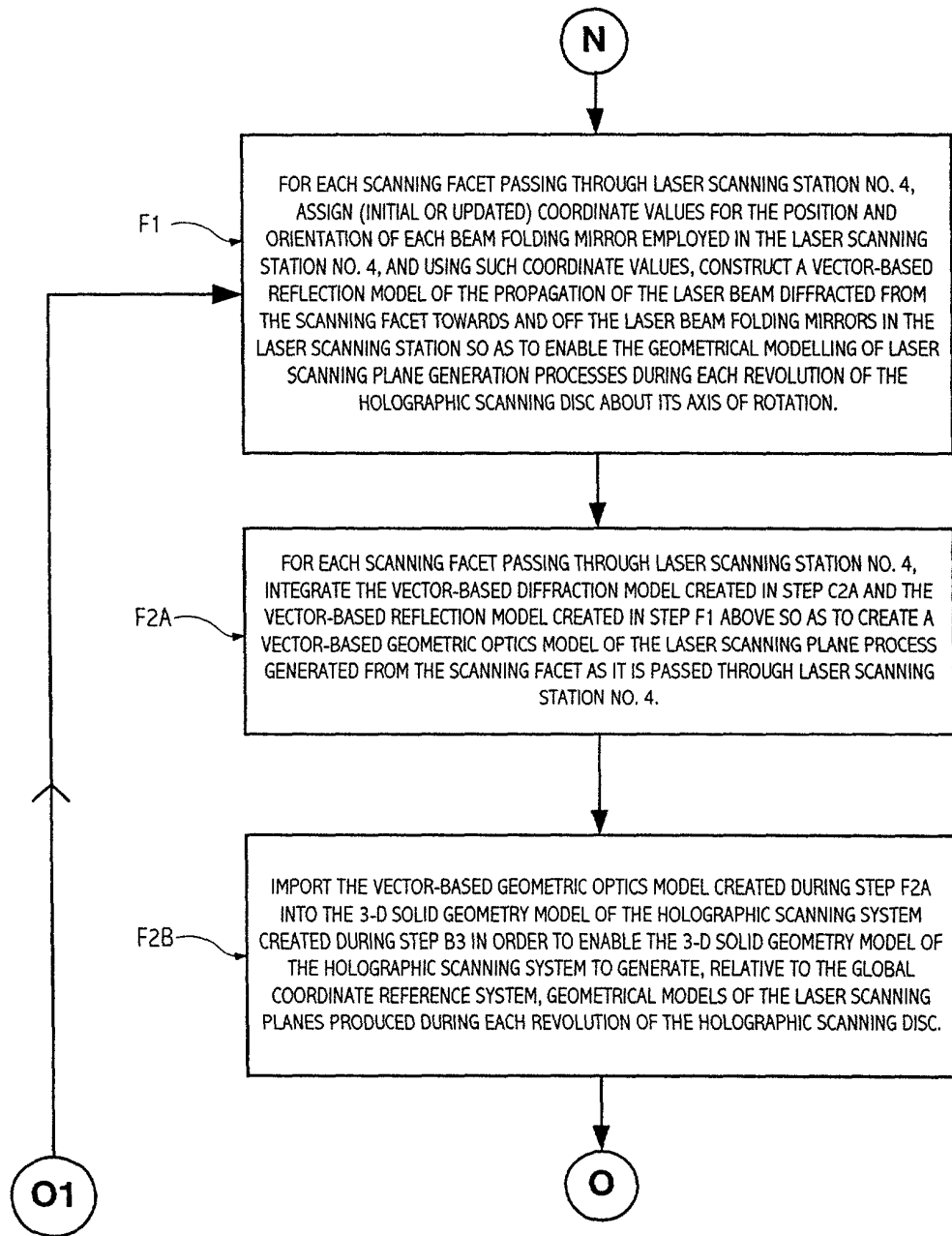


FIG. 70

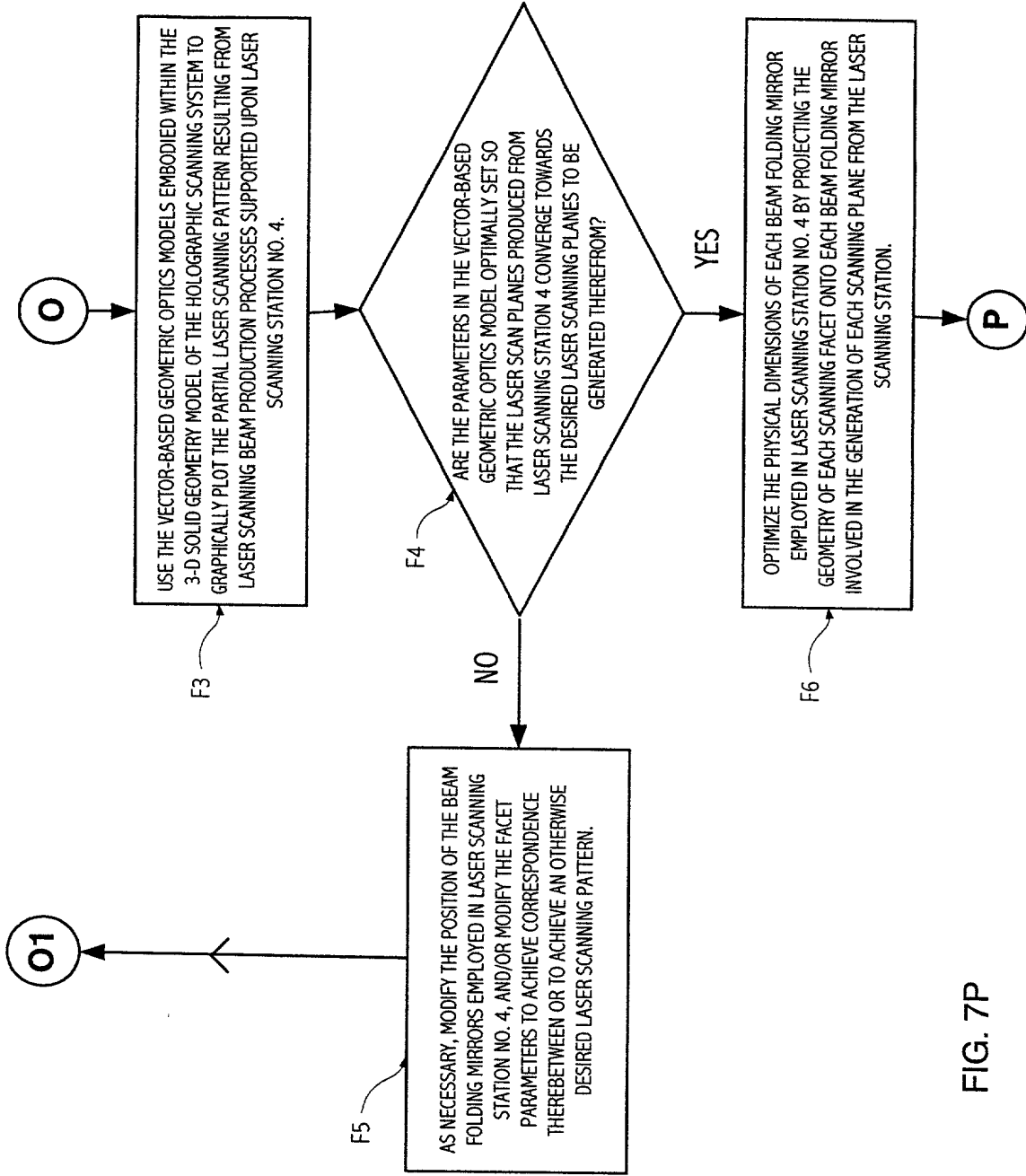


FIG. 7P

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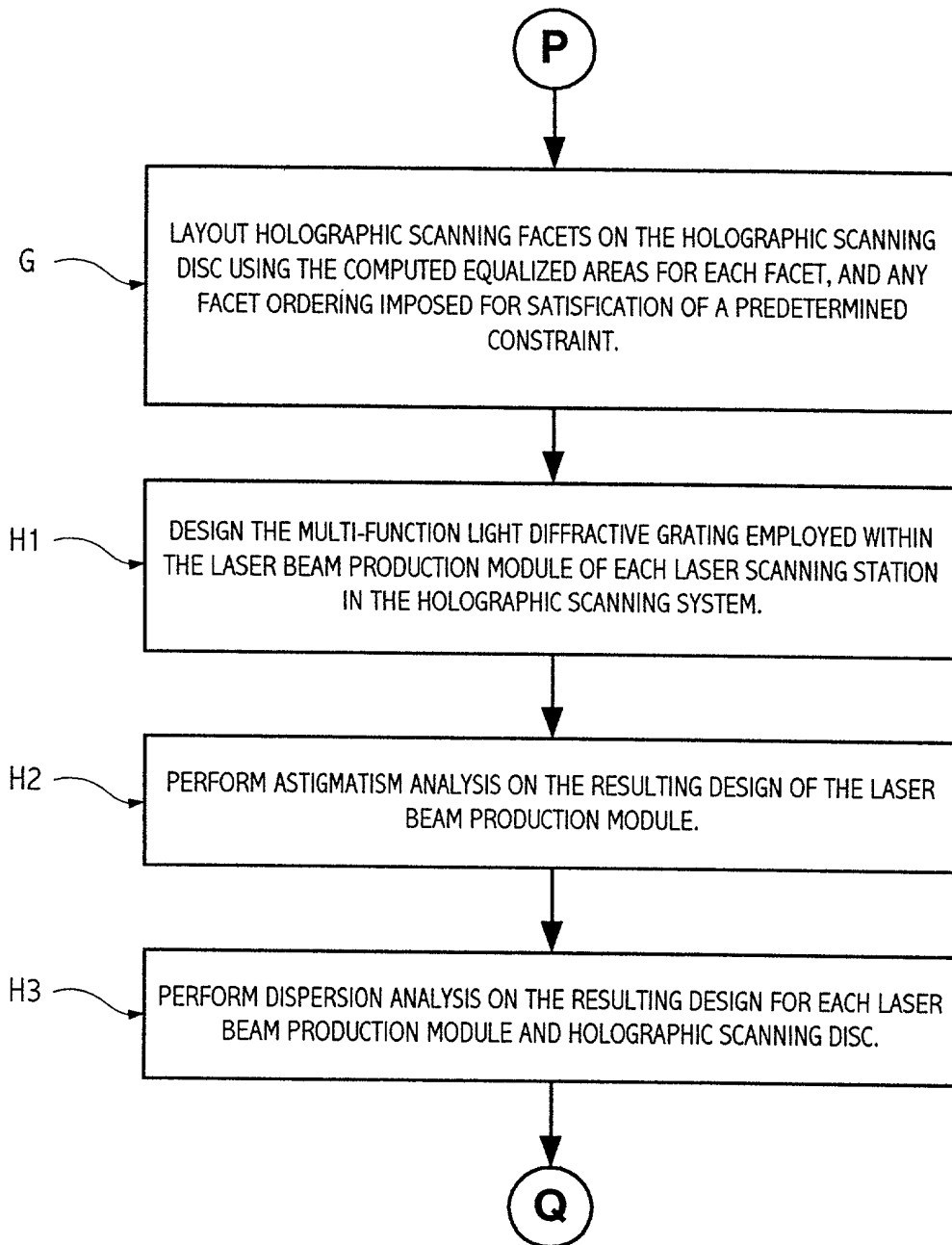


FIG. 7Q

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Q

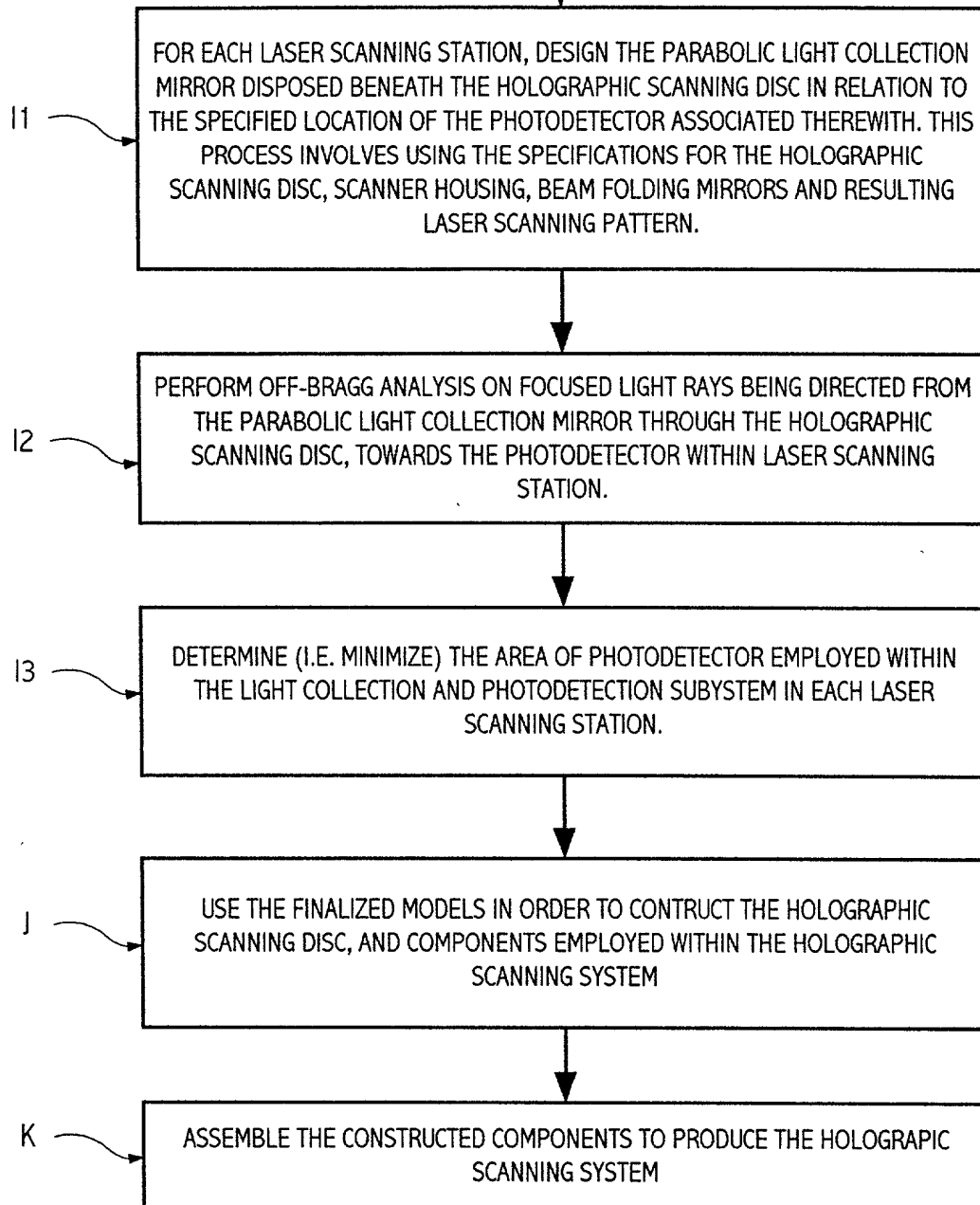


FIG. 7R

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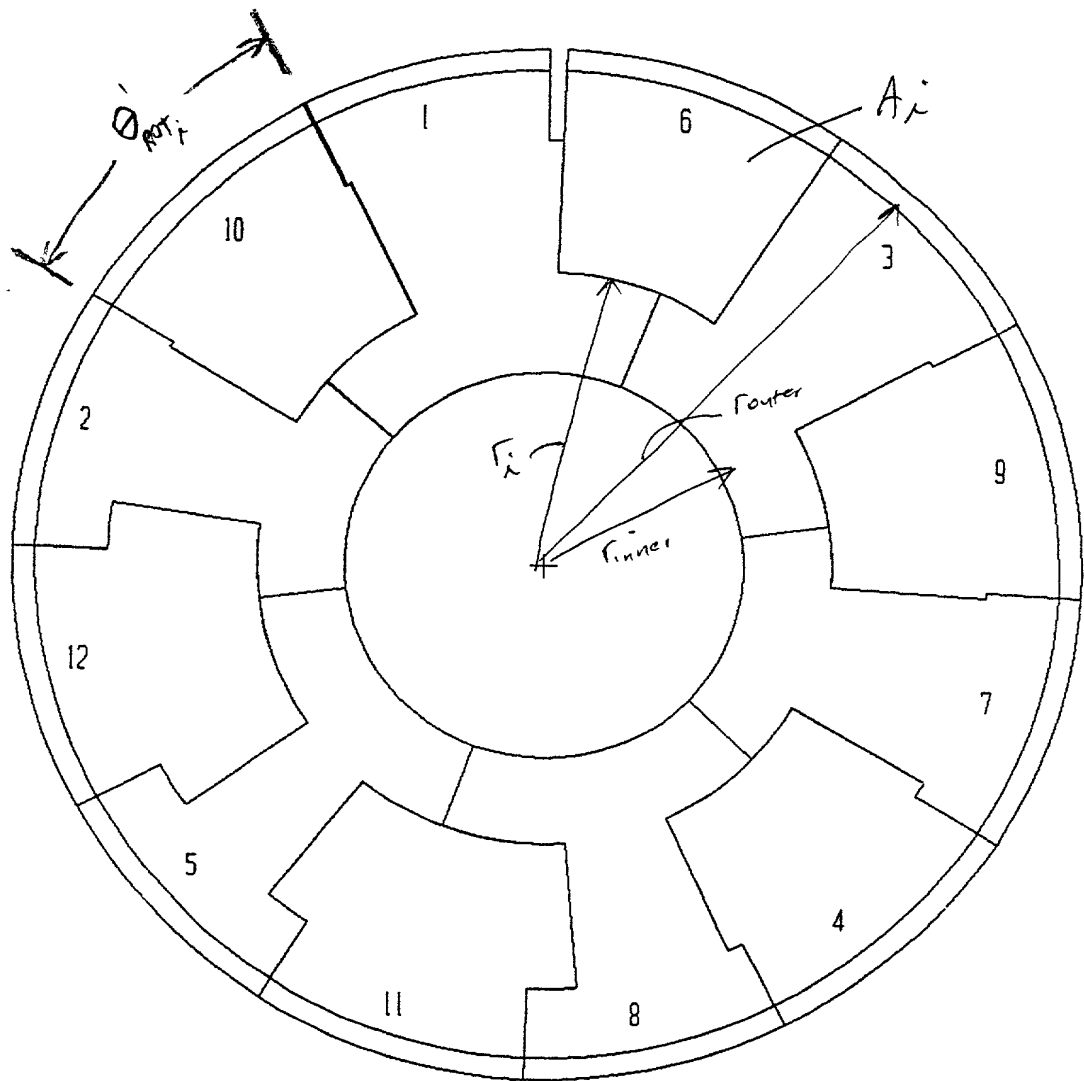


FIG. 8A

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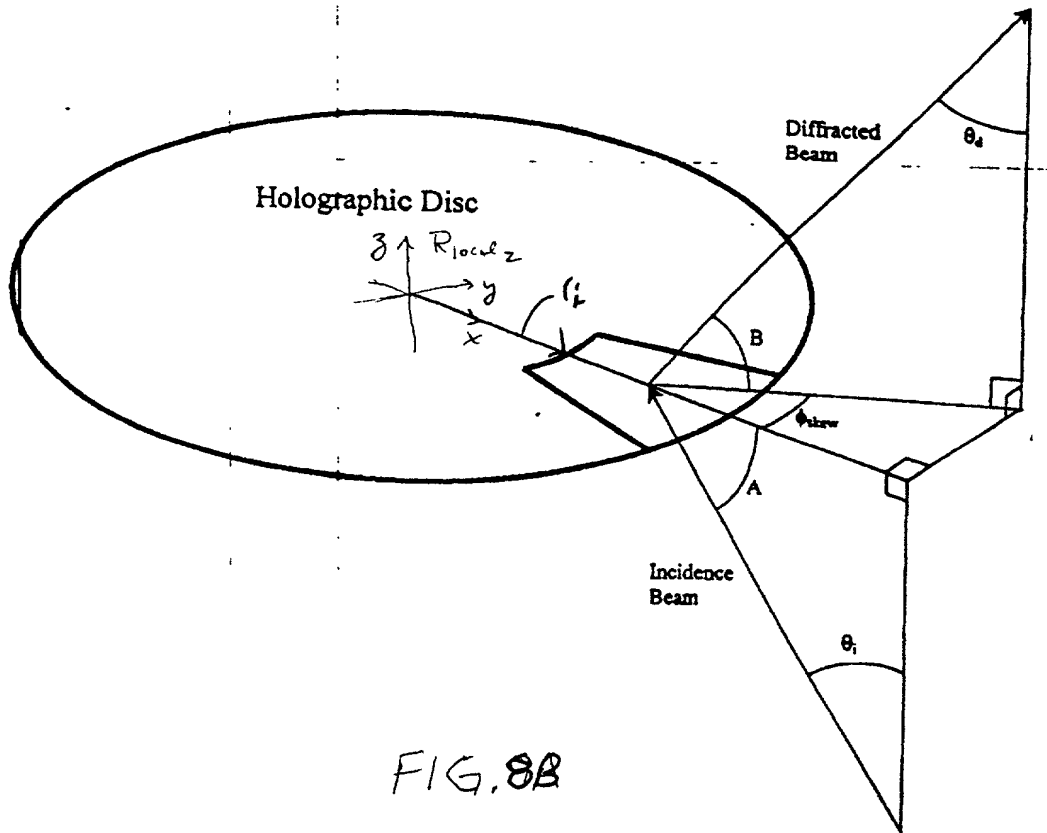


FIG. 8B

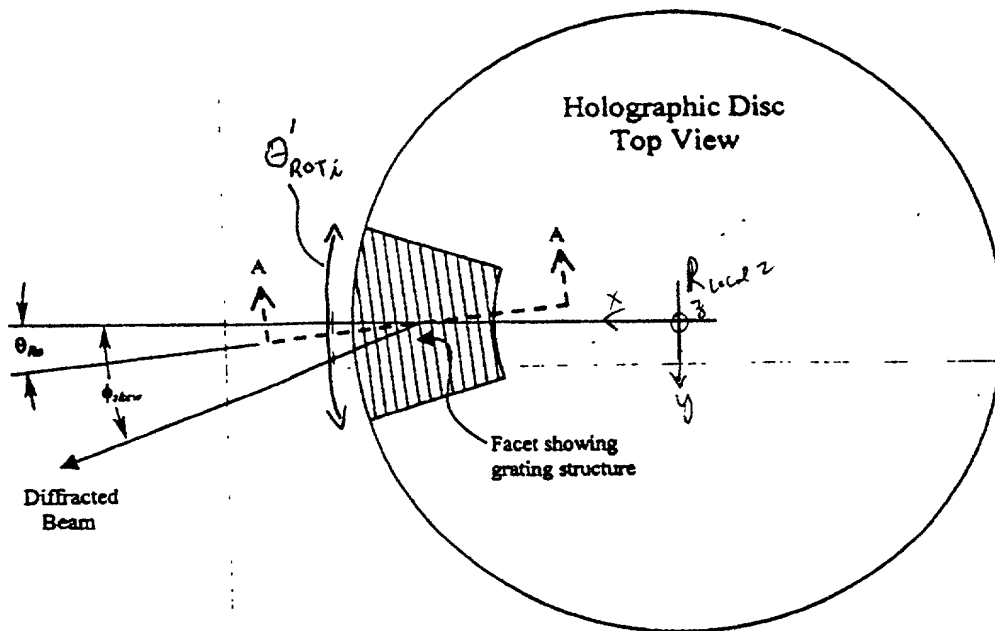


FIG. 8C

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- (1) THE RADIUS TO BEAM-INCIDENT-POINT ON THE HOLOGRAPHIC SCANNING DISC, ASSIGNED THE SYMBOLIC NOTATION " r_0 "
- (2) THE DISTANCE FROM RADIUS TO BEAM-INCIDENT-POINT r_0 TO BEAM FOLDING MIRROR , ASSIGNED THE SYMBOLIC NOTATION " L "
- (3) THE FACET NO. ON THE HOLOGRAPHIC SCANNING DISC, ASSIGNED THE SYMBOLIC NOTATION " i "
- (4) THE DISTANCE FROM THE BEAM INCIDENT POINT ON THE VIRTUAL SCANNING DISC TO THE FOCAL PLANE WITHIN WHICH THE (i, j) -TH SCANLINE RESIDES, ASSIGNED THE SYMBOLIC NOTATION " f_i "
- (5) THE DIAMETER OF THE CROSS-SECTION OF THE LASER BEAM SCANNING STATION, ASSIGNED THE SYMBOLIC NOTATION " d_{BEAM} "
- (6) THE ANGULAR GAP BETWEEN ADJACENT HOLOGRAPHIC SCANNING FACETS, ASSIGNED THE SYMBOLIC NOTATION " d_{GAP} "
- (7) THE OUTER RADIUS OF THE AVAILABLE LIGHT COLLECTION REGION ON THE HOLOGRAPHIC SCANNING DISC, ASSIGNED THE SYMBOLIC NOTATION " r_{OUTER} "
- (8) THE INNER RADIUS OF THE AVAILABLE LIGHT COLLECTION REGION ON THE HOLOGRAPHIC SCANNING FACET, ASSIGNED THE SYMBOLIC NOTATION " r_{INNER} "
- (9) THE FOCAL LENGTH OF THE i -TH HOLOGRAPHIC SCANNING FACET FROM THE SCANNING FACET TO THE CORRESPONDING FOCAL PLANE WITHIN THE SCANNING VOLUME, ASSIGNED THE SYMBOLIC NOTATION " f_i "
- (10) INCIDENT BEAM ANGLE, ASSIGNED THE SYMBOLIC NOTATION " A_i "

FIG. 8D1

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- (11) DIFFRACTED BEAM ANGLE, ASSIGNED THE SYMBOLIC NOTATION " B_i "
- (12) THE SCAN ANGLE OF THE LASER BEAM , ASSIGNED THE SYMBOLIC NOTATION " θ_{si} "
- (13) THE SCAN MULTIPLICATION FACTOR FOR THE i-TH HOLOGRAPHIC FACET, ASSIGNED THE SYMBOLIC NOTATION " M_i "
- (14) THE FACET ROTATION ANGLE FOR THE i-TH HOLOGRAPHIC FACET, ASSIGNED THE SYMBOLIC NOTATION " θ_{roTi} "
- (15) ADJUSTED FACET ROTATION ANGLE ACCOUNTING FOR DEADTIME, ASSIGNED THE SYMBOLIC NOTATION " θ'_{roTi} "
- (16) THE LIGHT COLLECTION EFFICIENCY FACTOR FOR THE i-TH HOLOGRAPHIC FACET, NORMALIZED RELATIVE TO THE 16TH FACET, ASSIGNED THE SYMBOLIC NOTATION " ξ_i "
- (17) THE MAXIMUM LIGHT COLLECTION AREA FOR THE i-TH HOLOGRAPHIC FACET, ASSIGNED THE SYMBOLIC NOTATION " $Area_i$ "
- (18) THE ANGLE OF SKEW OF THE DIFFRACTED LASER BEAM AT THE CENTER OF THE i-TH HOLOGRAPHIC FACET, ASSIGNED THE SYMBOLIC NOTATION " ϕ_{SKEW} "

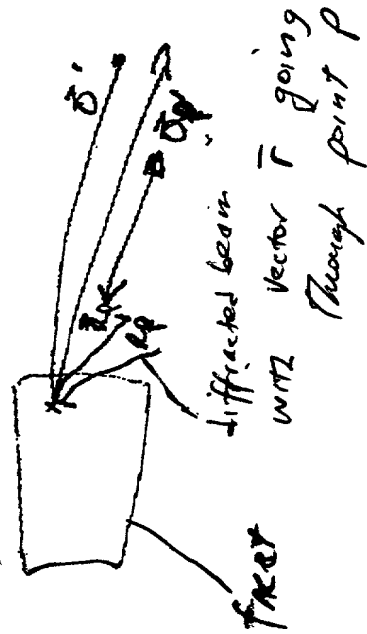
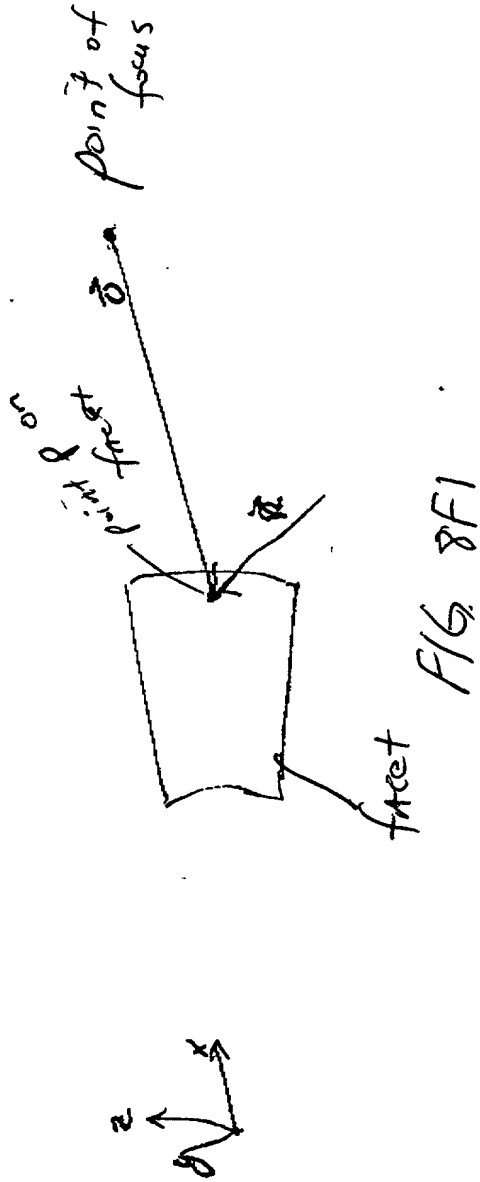
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PARAMETER EQUATION USED IN THE SPREADSHEET DESIGN OF THE SCANNER

- (1) f_i Focal Length - f_{i-th} facet
- (2) B_i Elevation Angle; $\theta_{dif i} = 90 - B_i$
- (3) θ_{Si}
- (4) $M_i := \frac{r_0}{f_i} \cos(\theta_{skew}) + \cos(\lambda_i) + \cos(B_i)$
- (5) $\theta_{roti} := \frac{\theta_{Si}}{M_i}$
- (6) $\theta'_{roti} := \theta_{roti} + \underbrace{\frac{d_{beam}}{r_0} + \frac{d_{gap}}{r_0}}_{\Theta_{dead}}$
- (7) $\xi_i := \left[\frac{f_i}{f_{20}} \right]^2 \frac{\sin[B_{20}]}{\sin(B_i)} H_i$
- (8) $Area_i := \pi \left[r_{outer}^2 + r_{inner}^2 \right] \frac{\xi_i}{\sum_{i=1}^{20} [\xi_i]} \quad i = 1, 2, \dots, 20$

FIG. 8E

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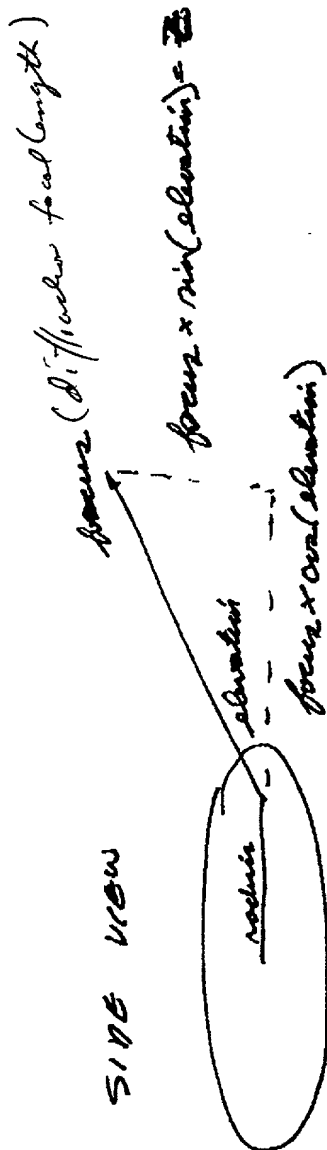
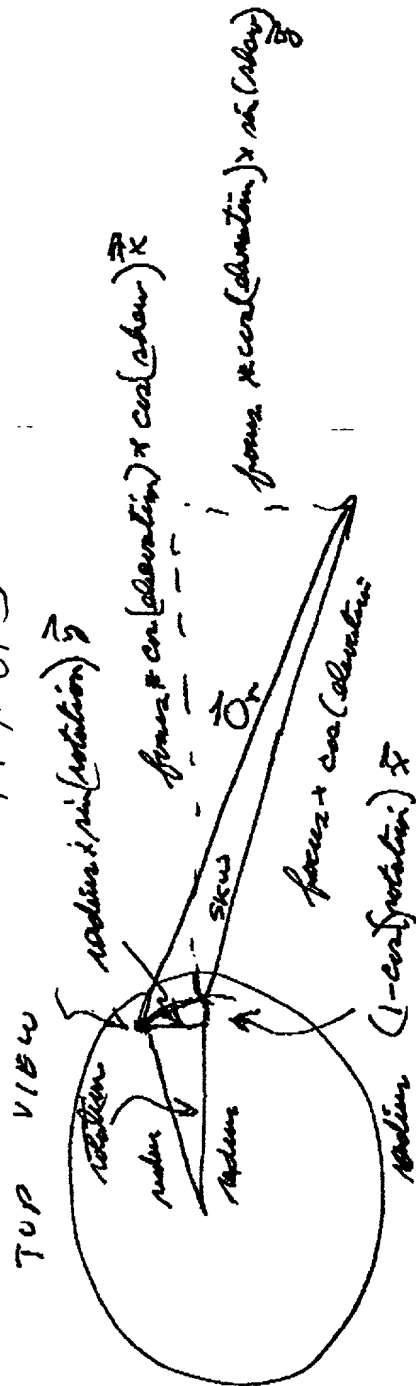


FIG. 8F3



(Or is equal to the sum of these components)

FIG. 8F4

Object ray \vec{O}_p composition:

$$\begin{aligned} \vec{O}_p = & \text{focus} \times \cos(\text{elevation}) \times \cos(\text{skew}) + \text{radius} (1 - \cos(\text{rotation})) \hat{y} \\ & + \text{focus} \times \cos(\text{elevation}) \times \sin(\text{skew}) + \text{radius} \sin(\text{rotation}) \hat{y} \\ & + \text{focus} \times \sin(\text{elevation}) \cdot \hat{z} \end{aligned}$$

where

- focus = The distance
- elevation = elevation angle of face
- skew = skew angle of face
- radius = radius to point P
- rotation = START-MIDDLE-END of scan angles

FIG. 8 F3

[illegible]

FIG. 9

[illegible]

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GEOMETRICAL OPTICS MODEL FOR HOLOGRAPHIC (TOTAL OUT AND BACK) LIGHT DIFFRACTION EFFICIENCY CALCULATIONS

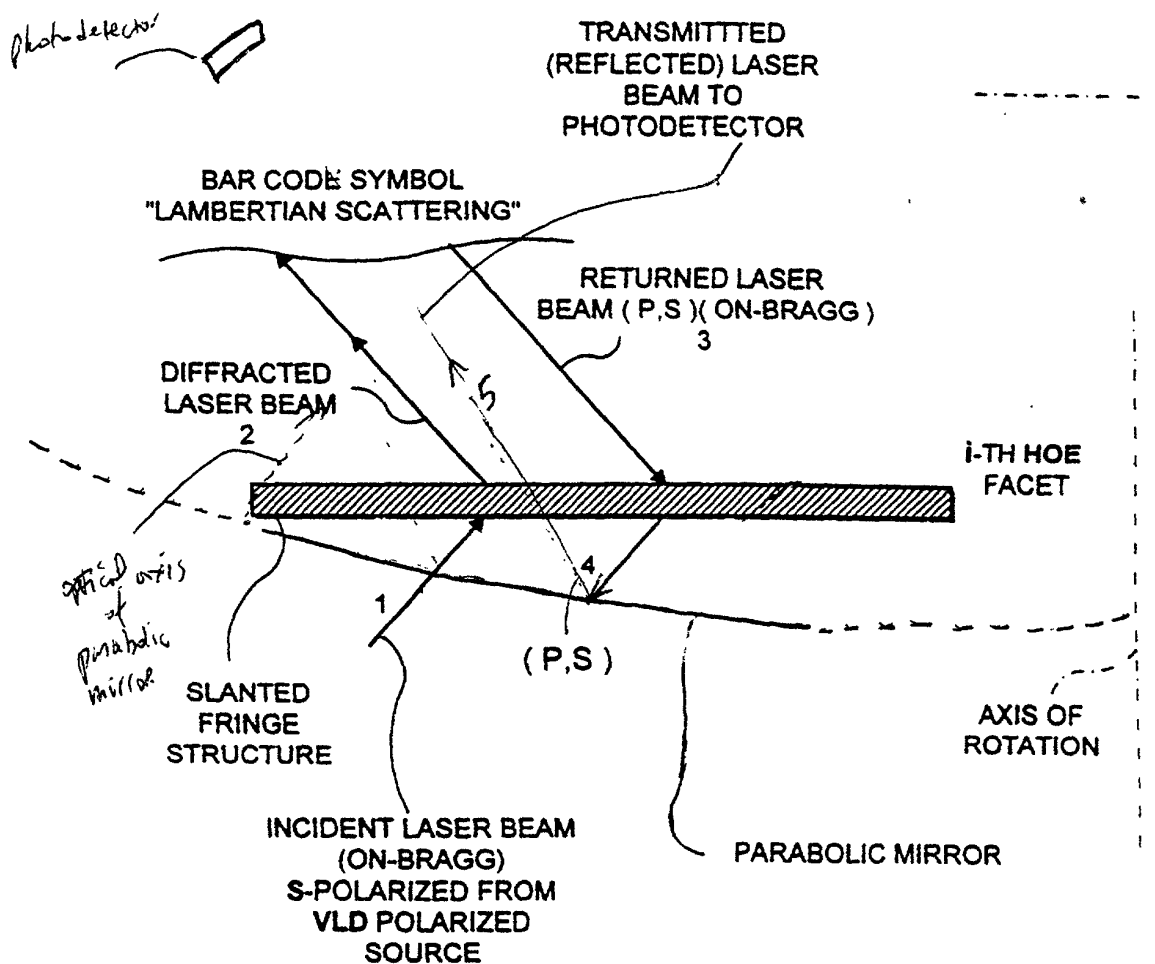


FIG. 10A1

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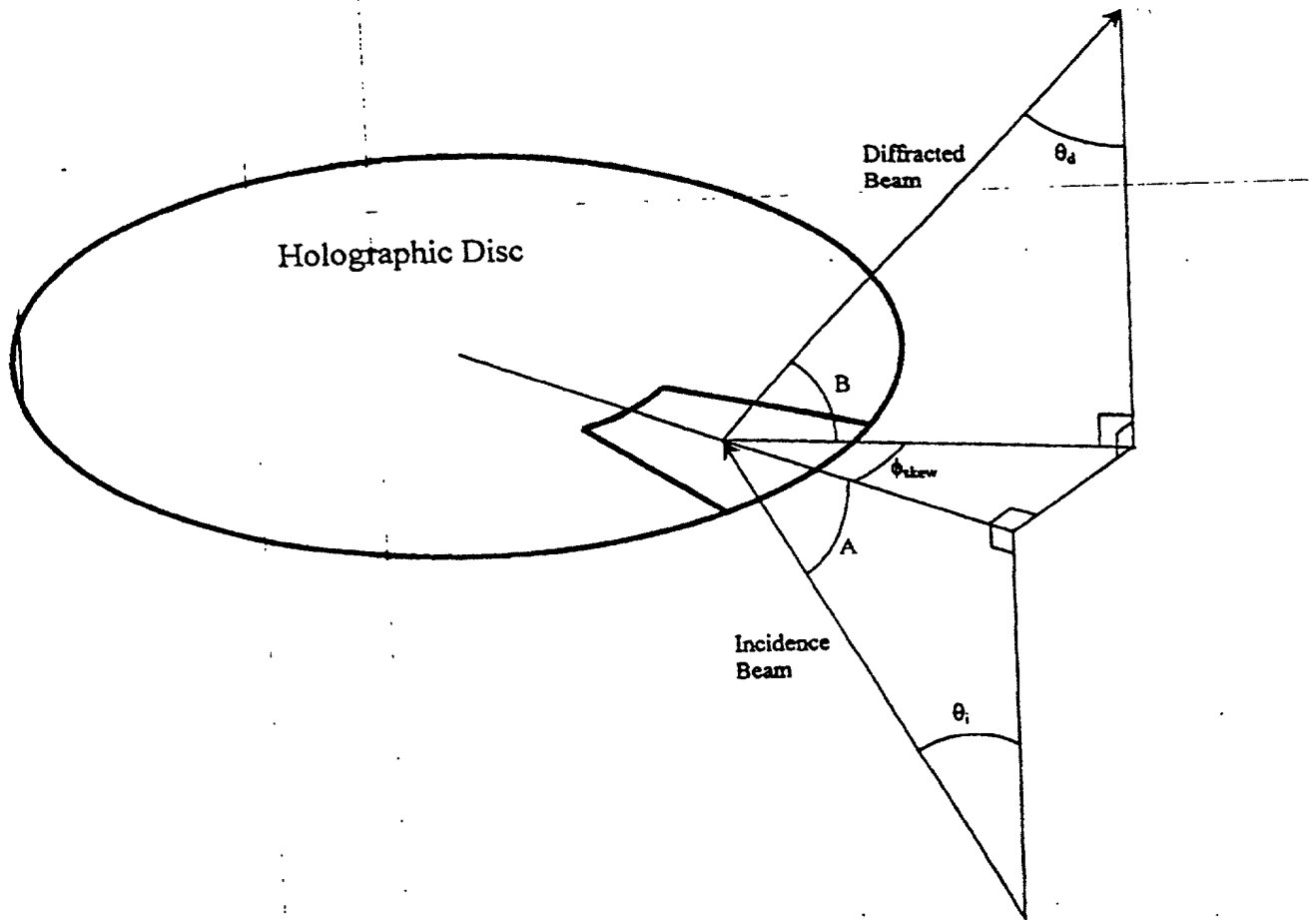


FIG. 10A2

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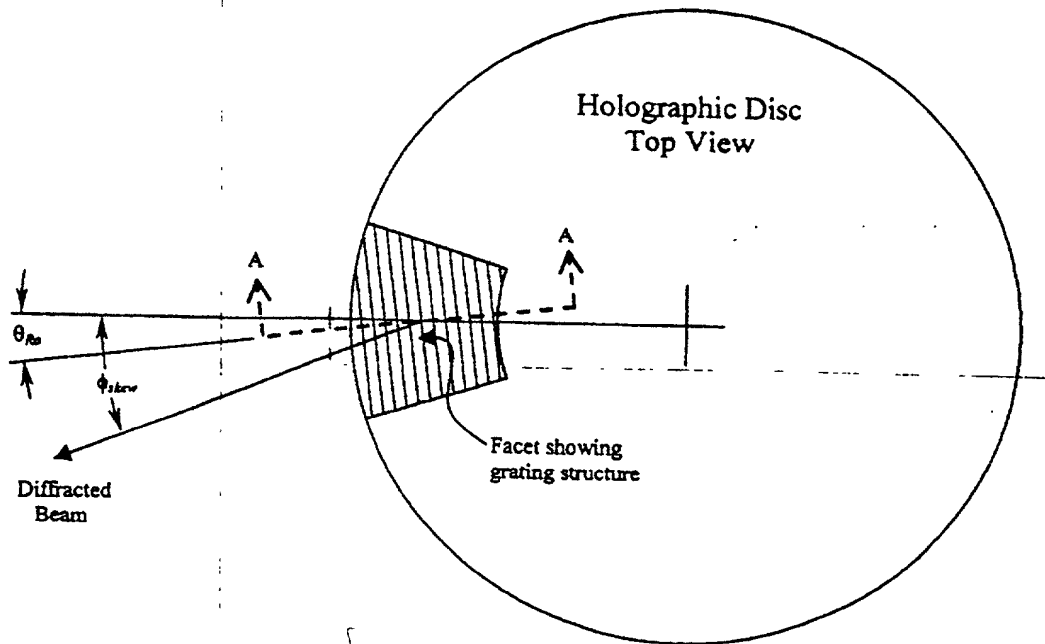


FIG. 10A3

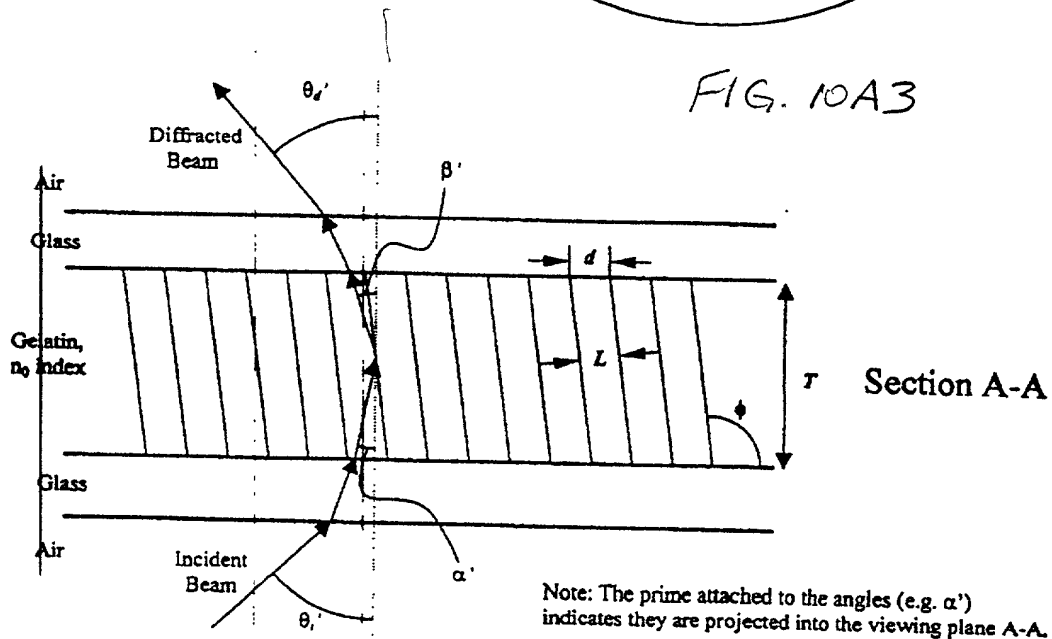


FIG. 10A4

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S AND P DIFFRACTION EFFICIENCY ANALYSIS FOR THE MOST GENERAL CASE

The following analysis takes into consideration slanted fringes, skewed design, off-Bragg effects, and disc rotation effects. It is assumed that the wavelength does not deviate from the design, and that all scattering, absorption, and reflection losses are taken into account by the transmission coefficients, t_s and t_p , which are determined by measurement.

Definitions:

- θ_i = Angle of incidence outside the HOE ($\theta_i = 90^\circ - A$);
- α = Angle of incidence inside the HOE;
- θ_d = Angle of diffraction outside the HOE ($\theta_d = 90^\circ - B$);
- β = Angle of diffraction inside the HOE;
- ϕ_{skew} = Skew angle of the HOE;
- ϕ = Tilt of Bragg planes ($\phi = \pi/2$ for no tilt);
- θ_R = Rotation angle of HOE grating ($\theta_R = \theta_{Ro}$ when facet is centered);
- L = Separation of the Bragg planes;
- T = Thickness of the HOE medium;
- d = HOE surface fringe spacing;
- n_0 = Average refractive index of HOE medium;
- n_1 = modulation (i.e. amplitude of periodic variation) of refractive index;
- λ_a = Laser wavelength in air;
- t_s = Transmission of S-polarization through disc considering losses;
- t_p = Transmission of P-polarization through disc considering losses.

FIG. 10B

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$$(1) \quad \alpha = \arcsin\left(\frac{\sin \theta_i}{n_0}\right)$$

$$(2) \quad \beta = \arcsin\left(\frac{\sin \theta_d}{n_0}\right)$$

$$(3) \quad \phi = \arcsin\left(\frac{\cos \beta - \cos \alpha}{\sqrt{2(1 + \sin \alpha \sin \beta \cos \phi_{skew} - \cos \alpha \cos \beta)}}\right) + 90$$

$$(4) \quad d = \sqrt{\frac{\lambda_a^2}{\sin^2 \theta_d \sin^2 \phi_{skew} + (\sin \theta_i + \sin \theta_d \cos \phi_{skew})^2}}$$

$$(5) \quad L = d \sin \phi$$

$$(6) \quad C_R = \cos \alpha$$

$$(7) \quad C_S = \cos \alpha - \frac{\lambda_d}{n_0 L} \cos \phi$$

$$(8) \quad N = \pi n_1 \frac{T}{\lambda_a \sqrt{C_R C_S}}$$

$$* (9) \quad \theta_{Ro} = \arcsin\left(\frac{d}{\lambda_a} \sin \theta_d \sin \phi_{skew}\right)$$

$$(10) \quad \Gamma = \frac{2\pi(\sin \alpha \sin \phi \cos \theta_{Ro} + \cos \alpha \cos \phi)}{L} - \frac{\pi \lambda_a}{n_0 L^2}$$

$$(11) \quad S = \Gamma \frac{T}{2C_S}$$

Figure 10C1

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$$(12) \quad \kappa = -\sin \alpha \sin \beta \cos \phi_{skew} + \cos \alpha \cos \beta$$

$$(13) \quad E_{par} = \frac{(\sin(\sqrt{N^2 + S^2}))^2}{1 + \frac{S^2}{N^2}}$$

$$(14) \quad E_{perp} = \frac{(\sin(\sqrt{(N\kappa)^2 + S^2}))^2}{1 + \frac{S^2}{(N\kappa)^2}}$$

$$(15) \quad P_{par} = \frac{-\sin \phi \sin \theta_{Ro}}{\sin(\arccos(-\sin \alpha \sin \phi \cos \theta + \cos \alpha \cos \phi))}$$

$$(16) \quad P_{perp} = 1 - P_{par}$$

Diffraction efficiencies E_s and E_p , given losses t_s and t_p which are specific to each polarization and include absorption, scattering, and reflection losses from AR coatings on the outer surfaces of the disc glass.

$$(17) \quad E_s = (E_{perp}P_{par} + E_{par}P_{perp})t_s$$

$$(18) \quad E_p = (E_{perp}P_{perp} + E_{par}P_{par})t_p$$

Total out-and-back efficiency is given by T_s , assuming no polarizer in front of the photodetector

$$(19) \quad T_s = E_s \frac{E_s + E_p}{2}$$

Figure 10C2

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$$(20) \theta_d \{\theta_R\} = \arcsin \sqrt{\left(\frac{\lambda_a}{d}\right)^2 - 2 \frac{\lambda_a}{d} \cos \theta_R \sin \theta_i + \sin^2 \theta_i}$$

$$(21) \phi_{skew} \{\theta_R\} = \arctan \left[\frac{\sin \theta_R}{\cos \theta_R - (d/\lambda_a) \sin \theta_i} \right]$$

$$(22) T_s \{\theta_{i \max}\} \cos \theta_d |_{\theta_R = \theta_{Ro} - \frac{1}{2} \theta_{ROT}} = T_s \{\theta_{i \max}\} \cos \theta_d |_{\theta_R = \theta_{Ro} + \frac{1}{2} \theta_{ROT}}$$

The design efficiency of the i^{th} facet is given by evaluating T_s at the design incidence angle, θ_i , the design rotation angle, θ_{Ro} , and the index modulation that maximizes the efficiency, $n_{1 \max}$, given the true maximum efficiency incidence angle, $\theta_{i \max}$, that results from equation (22). The relative efficiency, H_i , is then given by dividing the total efficiency of the first facet by that of the i^{th} facet.

$$(23) H_i = \frac{T_{s1}}{T_{si} \{\theta_i, \theta_{i \max}, \theta_{Ro}, n_{1 \max}\}}$$

Figure 10C3

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Diffraction Efficiency Variation with Disc Rotation

Facet 1: before optimization

Fixed design parameters:

$$\theta_i = 38^\circ$$

$$\theta_d = 52^\circ$$

$$\phi_{skew} = 0^\circ$$

$$\lambda_d = 650 \text{ nm}$$

DCG parameters:

$$T = 2.5 \text{ microns}$$

$$n_0 = 1.40$$

$$n_1 = 0.121$$

Relative signal is equal to $T_s \cos \theta_d$. Note that the relative signal falls off as the rotation angle goes away from zero. This is for a maximum efficiency incidence angle, θ_{imax} , equal to θ_i (38°). This indicates a non-optimum configuration.

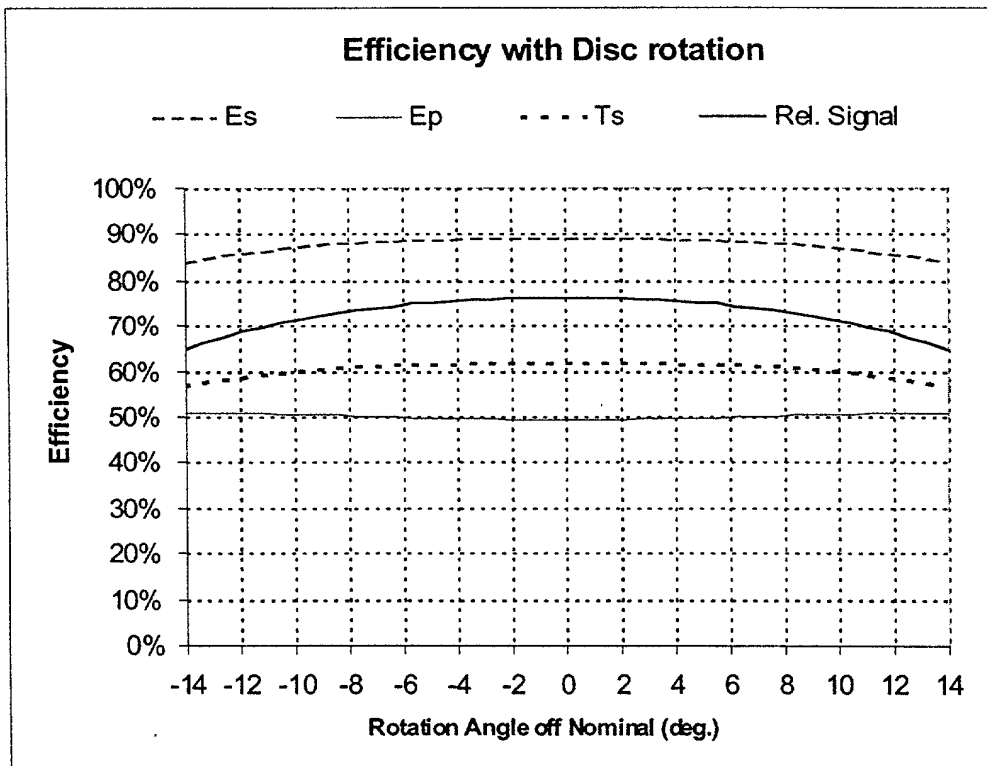


FIG. 10D1

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Diffraction Efficiency Variation with Disc Rotation

Facet 1: after optimization

Fixed design parameters:

$$\theta_i = 38^\circ$$

$$\theta_d = 52^\circ$$

$$\phi_{skew} = 0^\circ$$

$$\lambda_d = 650 \text{ nm}$$

DCG parameters:

$$T = 2.5 \text{ microns}$$

$$n_0 = 1.40$$

$$n_1 = 0.121$$

Relative signal is equal to $T_s \cos \theta_d$. Note that the relative signal at a rotation angle of $\pm 13^\circ$ is equal to the relative signal at 0° . This is achieved when the maximum efficiency incidence angle, θ_{imax} , is 36.3° .

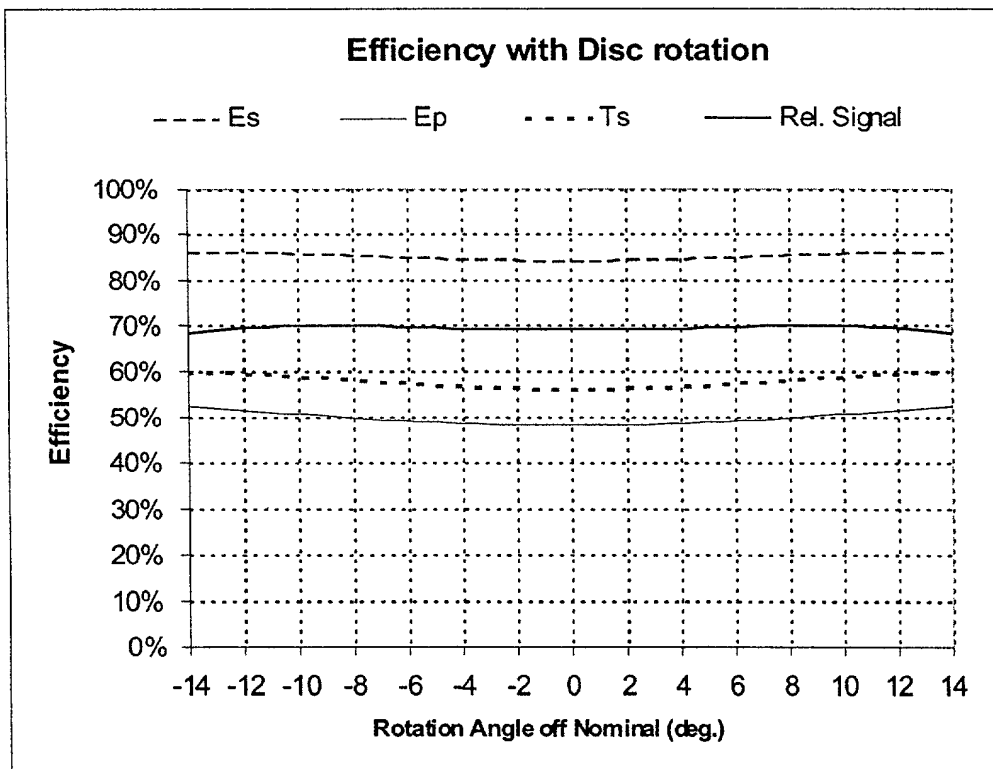


FIG. 10D2

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Diffraction Efficiency Variation with Disc Rotation

Facet 7: before optimization

Fixed design parameters:

$$\theta_i = 38^\circ$$

$$\theta_d = 32^\circ$$

$$\phi_{skew} = 28^\circ$$

$$\lambda_d = 650 \text{ nm}$$

DCG parameters:

$$T = 2.5 \text{ microns}$$

$$n_0 = 1.40$$

$$n_1 = 0.121$$

Relative signal is equal to $T_s \cos \theta_d$. Note that the relative signal falls off as the rotation angle goes from negative to positive. This is for a maximum efficiency incidence angle, θ_{imax} , equal to θ_i (38°). This indicates a non-optimum configuration.

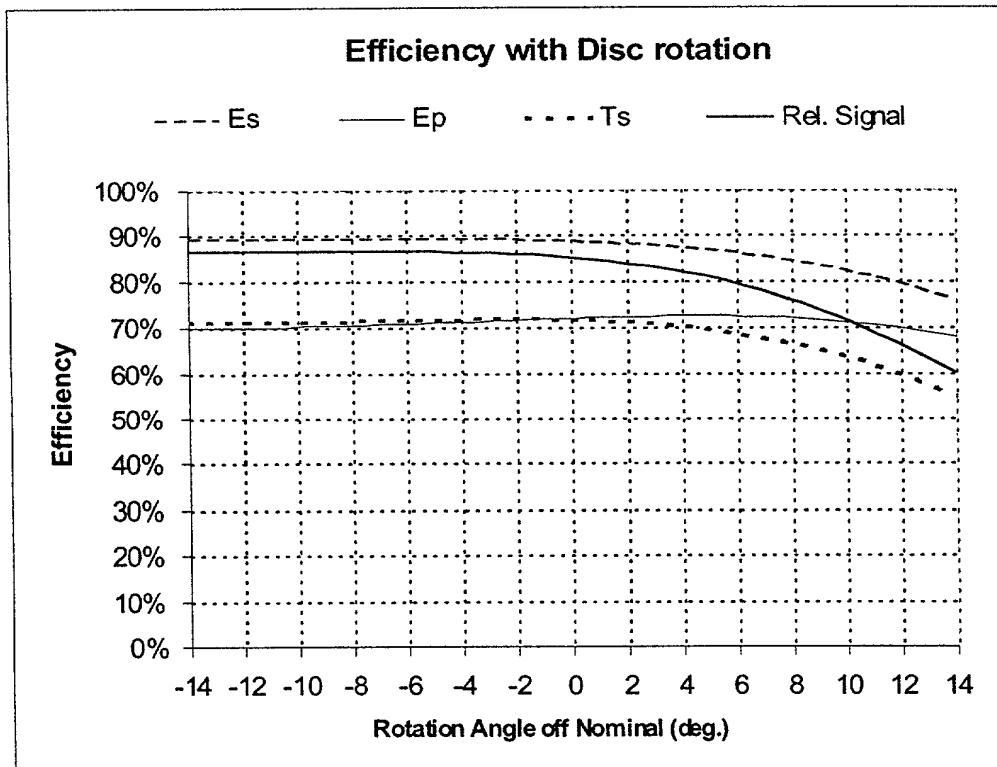


FIG. 10E1

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Diffraction Efficiency Variation with Disc Rotation

Facet 7: after optimization

Fixed design parameters:

$$\theta_i = 38^\circ$$

$$\theta_d = 32^\circ$$

$$\phi_{skew} = 28^\circ$$

$$\lambda_d = 650 \text{ nm}$$

DCG parameters:

$$T = 2.5 \text{ microns}$$

$$n_0 = 1.40$$

$$n_1 = 0.121$$

Relative signal is equal to $T_s \cos \theta_d$. Note that the relative signal at a rotation angle of -14° is equal to the relative signal at $+14^\circ$. This is achieved when the maximum efficiency incidence angle, θ_{imax} , is 35.8° .

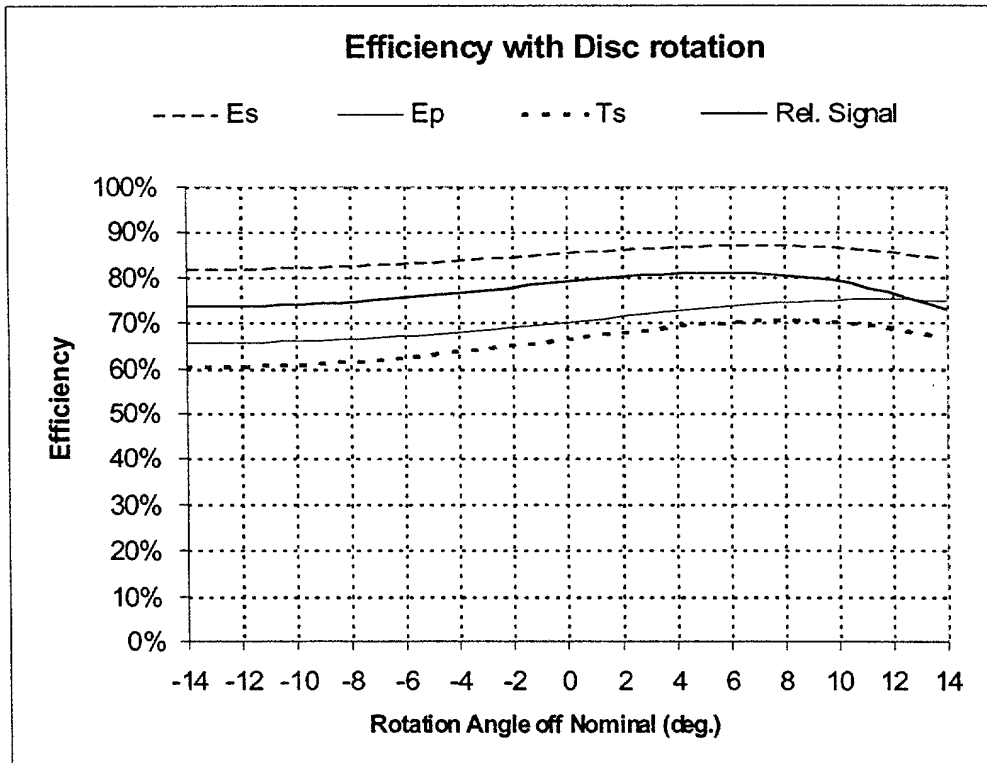


FIG. 10E2

S and P Diffraction Efficiency Calculations

It is assumed that there is no deviation from the nominal wavelength.

Facet-independent design parameters:

Design wavelength: 650 nm
 External incidence angle: 38 deg
 Internal incidence angle: 26.09 deg
 Geletin effective thickness: 2.5 microns
 Average bulk refractive index: 1.4
 Refractive index modulation: 0.121
 S-polarization losses: 10%
 P-polarization losses: 10%
 degrees to radians conversion: 0.017453

Facet	θ_d (deg.)	β (deg.)	ϕ_{skew} (deg.)	d (nm)	θ_{Ro} (deg.)	$\theta_{i,max}$ (deg.)	α_{max} (deg.)	β_{max} (deg.)	$\phi_{s,max}$ (deg.)	ϕ (deg.)	L (nm)	θ_{ROT} (deg.)
1	52.00	34.25	0	463.1	0.00	36.30	25.02	35.43	0.00	84.79	461.2	26.24
2	50.00	33.17	0	470.4	0.00	36.30	25.02	34.34	0.00	85.34	468.9	28.35
3	48.00	32.06	0	478.4	0.00	36.30	25.02	33.21	0.00	85.90	477.1	26.66
4	46.00	30.92	0	486.9	0.00	36.30	25.02	32.05	0.00	86.48	486.0	29.19
5	42.00	28.55	0	505.9	0.00	36.30	25.02	29.66	0.00	87.68	505.5	27.97
6	38.00	26.09	0	527.9	0.00	36.30	25.02	27.17	0.00	88.92	527.8	30.28
7	32.00	22.24	28	584.7	12.93	35.80	24.70	23.45	26.52	90.64	584.6	27.99
8	32.00	22.24	-28	584.7	-12.93	35.80	24.70	23.45	-26.52	90.64	584.6	27.99
9	30.00	20.92	28	600.2	12.52	35.56	24.55	22.26	26.27	91.17	600.1	30.65
10	30.00	20.92	-28	600.2	-12.52	35.56	24.55	22.26	-26.27	91.17	600.1	30.65
11	28.00	19.59	28	617.0	12.08	35.72	24.65	20.83	26.28	91.96	616.6	29.19
12	28.00	19.59	-28	617.0	-12.08	35.72	24.65	20.83	-26.28	91.96	616.6	29.19

FIG. 10F1

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1999年12月10日，在北京市举行的“2000年中国
 经济年会”上，江泽民主席在题为《世纪之交的
 中国》的讲话中，首次提出“三个代表”的重要
 思想，即中国共产党要始终代表中国先进生产
 力的发展要求，代表中国先进文化的前进方向，
 代表中国最广大人民的根本利益。这一思想
 的提出，标志着中国共产党对党的性质、宗旨
 和任务的认识达到了一个新的高度。

C_S	N	θ_d		β		ϕ_{skew}		Γ		S	
		$-\frac{1}{2}\theta_{ROT}$	$+\frac{1}{2}\theta_{ROT}$	$-\frac{1}{2}\theta_{ROT}$	$+\frac{1}{2}\theta_{ROT}$	$-\frac{1}{2}\theta_{ROT}$	$+\frac{1}{2}\theta_{ROT}$	$-\frac{1}{2}\theta_{ROT}$	$+\frac{1}{2}\theta_{ROT}$	θ_{R0}	$+\frac{1}{2}\theta_{ROT}$
0.807	1.718	54.70	54.70	35.66	35.66	-22.98	22.98	0.0634	0.2192	0.0634	0.3397
0.818	1.706	53.05	53.05	34.81	34.81	-25.05	25.05	0.0380	0.2168	0.0380	0.3315
0.829	1.695	50.61	50.61	33.51	33.51	-23.91	23.91	0.0586	0.2143	0.0586	0.3232
0.839	1.684	49.05	49.05	32.65	32.65	-26.45	26.45	0.0285	0.2116	0.0285	0.3150
0.861	1.663	44.69	44.69	30.16	30.16	-26.20	26.20	0.0438	0.2057	0.0438	0.2987
0.882	1.643	41.07	41.07	27.99	27.99	-29.30	29.30	0.0176	0.1992	0.0176	0.2825
0.907	1.620	29.76	38.91	20.76	26.66	-2.39	53.28	0.3498	0.2307	-0.1618	0.4820
0.907	1.620	38.91	29.76	26.66	20.76	-53.28	2.39	-0.1618	0.2307	0.3498	0.3180
0.914	1.614	27.96	37.62	19.57	25.85	-6.49	55.95	0.3549	0.2510	-0.1726	0.3432
0.914	1.614	37.62	27.96	25.85	19.57	-55.95	6.49	-0.1726	0.2510	0.3549	0.3432
0.924	1.605	26.06	35.04	18.29	24.21	-6.05	55.44	0.3252	0.2304	-0.1470	0.3118
0.924	1.605	35.04	26.06	24.21	18.29	-55.44	6.05	-0.1470	0.2304	0.3252	0.3118

FIG. 10F2

$-\frac{1}{2}\theta_{ROT}$	K θ_{Ro}	E_{par} θ_{Ro}		E_{perp} θ_{Ro}		P_{par} θ_{Ro}		P_{perp} θ_{Ro}	
		$-\frac{1}{2}\theta_{ROT}$	$+\frac{1}{2}\theta_{ROT}$	$-\frac{1}{2}\theta_{ROT}$	$+\frac{1}{2}\theta_{ROT}$	$-\frac{1}{2}\theta_{ROT}$	$+\frac{1}{2}\theta_{ROT}$	$-\frac{1}{2}\theta_{ROT}$	$+\frac{1}{2}\theta_{ROT}$
0.5028	0.4948	0.5028	0.5028	0.5746	0.9746	0.9315	0.9746	0.5419	0.5759
0.5187	0.5111	0.5187	0.5187	0.9804	0.9804	0.9369	0.9804	0.5639	0.5983
0.5354	0.5277	0.5354	0.5354	0.9814	0.9814	0.9420	0.9814	0.5860	0.6192
0.5519	0.5445	0.5519	0.5519	0.9865	0.9865	0.9468	0.9865	0.6082	0.6416
0.5680	0.5787	0.5860	0.5860	0.9899	0.9899	0.9552	0.9899	0.6521	0.6834
0.6200	0.6132	0.6200	0.6200	0.9945	0.9945	0.9623	0.9945	0.6947	0.7248
0.6918	0.6843	0.6906	0.6906	0.9773	0.9773	0.9567	0.9773	0.7720	0.7946
0.6906	0.6843	0.6918	0.6918	0.9056	0.9056	0.9567	0.9056	0.7720	0.7946
0.7080	0.7002	0.7068	0.7068	0.9051	0.9051	0.9508	0.9051	0.7833	0.8093
0.7068	0.7002	0.7080	0.7080	0.9755	0.9755	0.9508	0.9755	0.7833	0.8093
0.7227	0.7159	0.7221	0.7221	0.9220	0.9220	0.9597	0.9220	0.8032	0.8276
0.7221	0.7159	0.7227	0.7227	0.9828	0.9828	0.9597	0.9828	0.8032	0.8276
				0.9220	0.9220	0.9597	0.9220	0.8032	0.8276
				0.9828	0.9828	0.9597	0.9828	0.8032	0.8276
				0.9056	0.9056	0.9567	0.9056	0.7720	0.7946
				0.9773	0.9773	0.9567	0.9773	0.7720	0.7946
				0.9945	0.9945	0.9623	0.9945	0.6947	0.7248
				0.9899	0.9899	0.9552	0.9899	0.6521	0.6834
				0.9865	0.9865	0.9468	0.9865	0.6082	0.6416
				0.9814	0.9814	0.9420	0.9814	0.5860	0.6192
				0.9804	0.9804	0.9369	0.9804	0.5639	0.5983
				0.9746	0.9746	0.9315	0.9746	0.5419	0.5759
				0.5746	0.5746	0.5759	0.5746	0.0580	0.0580
				0.0580	0.0580	0.0000	0.0580	0.0000	0.0000
				0.0680	0.0680	0.0000	0.0680	0.0000	0.0000
				0.0609	0.0609	0.0000	0.0609	0.0000	0.0000
				0.0733	0.0733	0.0000	0.0733	0.0000	0.0000
				0.0688	0.0688	0.0000	0.0688	0.0000	0.0000
				0.0818	0.0818	0.0000	0.0818	0.0000	0.0000
				0.0818	0.0818	0.0000	0.0818	0.0000	0.0000
				0.2446	0.2446	0.0620	0.2446	0.0620	0.0620
				0.0004	0.0004	0.0000	0.0004	0.0000	0.0000
				0.2614	0.2614	0.0587	0.2614	0.0587	0.0587
				0.0030	0.0030	0.0000	0.0030	0.0000	0.0000
				0.7386	0.7386	0.9413	0.7386	0.9413	0.9413
				0.9970	0.9970	0.9413	0.9970	0.9413	0.9413
				0.7554	0.7554	0.9380	0.7554	0.9380	0.9380
				0.9182	0.9182	1.0000	0.9182	1.0000	0.9182
				0.9312	0.9312	1.0000	0.9312	1.0000	0.9312
				0.9267	0.9267	1.0000	0.9267	1.0000	0.9267
				0.9391	0.9391	1.0000	0.9391	1.0000	0.9391
				0.9320	0.9320	1.0000	0.9320	1.0000	0.9320
				0.9420	0.9420	1.0000	0.9420	1.0000	0.9420

FIG. 10F3

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E_s			E_p			T_s			H_i	Solver (=0)
$-\frac{1}{2}\theta_{ROT}$	θ_{Ro}	$+\frac{1}{2}\theta_{ROT}$	$-\frac{1}{2}\theta_{ROT}$	θ_{Ro}	$+\frac{1}{2}\theta_{ROT}$	$-\frac{1}{2}\theta_{ROT}$	θ_{Ro}	$+\frac{1}{2}\theta_{ROT}$		
85.6%	83.8%	85.6%	53.9%	48.8%	53.9%	59.7%	55.6%	59.7%	1.000	0
85.9%	84.3%	85.9%	56.2%	50.8%	56.2%	61.0%	57.0%	61.0%	0.976	0
86.3%	84.8%	86.3%	57.7%	52.7%	57.7%	62.2%	58.3%	62.2%	0.953	0
86.5%	85.2%	86.5%	60.0%	54.7%	60.0%	63.4%	59.6%	63.4%	0.932	0
87.2%	86.0%	87.2%	63.4%	58.7%	63.4%	65.7%	62.2%	65.7%	0.894	0
87.5%	86.6%	87.5%	67.2%	62.5%	67.2%	67.7%	64.6%	67.7%	0.861	0
81.5%	85.1%	83.9%	67.0%	70.5%	75.5%	60.5%	66.2%	66.9%	0.840	0.020396813
83.9%	85.1%	81.5%	75.5%	70.5%	67.0%	66.9%	66.2%	60.5%	0.840	0.020396813
81.4%	84.7%	83.9%	68.3%	71.4%	76.7%	60.9%	66.1%	67.4%	0.841	0.02187036
83.9%	84.7%	81.4%	76.7%	71.4%	68.3%	67.4%	66.1%	60.9%	0.841	0.02187036
82.9%	85.6%	85.0%	70.4%	73.1%	77.9%	63.6%	67.9%	69.3%	0.819	0.019325482
85.0%	85.6%	82.9%	77.9%	73.1%	70.4%	69.3%	67.9%	63.6%	0.819	0.019325482
										0.255193744

Figure 10F4

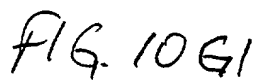
[illegible]

FIG. 10G1

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FACET LIGHT COLLECTION EFFICIENCY

- Z = DISTANCE FROM SCAN POINT ON LABEL (MAX = FOCAL)
LENGTH PLUS 5 INCHES
- Area = AREA OF CORRESPONDING FACET
- R = RADIUS OF EFFECTIVE CIRCULAR APERTURE
- R.pr = RADIUS OF PROJECTED EFFECTIVE CIRCULAR APERTURE
- B = ANGLE BETWEEN OUTGOING BEAM AND THE DISC
- δ = HALF-ANGLE SUBTENDED BY EFFECTIVE PROJECTED
CIRCULAR APERTURE
- E.L = LAMBERTIAN LIGHT COLLECTION EFFICIENCY

FIG. 10G2

$$R_{pr} : = \sqrt{\frac{\text{Area} \sin B}{\pi}}$$

$$\delta : = \text{atan} \left[\frac{R_{pr}}{Z} \right]$$

$$E_L : = (\sin (\delta))^2$$

FIG. 10G3

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TRNCSrates-S-Pol.xls
 Degrees to radians conversion factor:
 Truncation analysis. Effect of truncation on the diffraction limited spot size of a Gaussian beam
 0.017453293
 Given the laser and lens parameters, this spreadsheet will calculate the effect of truncation on the beam
 The final result is an "effective diameter." This is an equivalent 1/e-squared diameter that will
 produce the same spot size at the focal point as the actual truncated beam. This is also the beam
 diameter that will be inserted in the main scanner disk design spreadsheet.
 The actual number linked to the main spreadsheet will be a rounded number.
 It will usually be rounded up 0.1 to allow for tolerances.

Sony	Wavelength (nm)	650
SLD13TVS	theta-P (degrees)	8
	theta-S (degrees)	30
	Alignment (microns)	7
Lens:	focal length (mm)	5
	Numerical Aperture	0.15
	Clear Aperture (mm)	1.50 lens diam
1/e-squared beam diameter at lens (mm)	(= 2 x f x NA)	1.188

Aperture factor (m) 1.263
 1/e-squared beam radius (for normalized aperture) 0.792
 Truncation factor 1.219

m = 1 is 1/e-squared truncation
 m > 2 is essentially no truncation
 1/e-squared radius at focal plane is -
 increased by this factor due to truncation.

To determine the effective diameter,
 very 20 unit (AZ(0)/A(0))^2 = 0.135353 or,
 equivalently, until Ln(AZ(0)/A(0))^2 = -2
 This can most easily be done by using
 the SOLVER function of Excel Tools:
 Target cell = \$C\$31; Value = -2
 Change cell = \$C\$29

Effective diameter: 0.97
 Spreadsheet value: 1.10
 This is the effective beam diameter that
 is linked to the Gauss spreadsheet
 and the main disk design spreadsheet.

The remaining part of this spreadsheet is simply the numerical integration
 of the diffraction equation for A(z) from the Mathcad program.
 It includes the evaluation of the functions (AZ/A(0))^2 and Ln(AZ/A(0))^2.
 It also includes a graph of (AZ/A(0))^2 vs Z.

delta-z	r	e ^{-r(r/0)^2}	A(Z1)	A(Z2)	A(Z3)	etc.	Zn =	delta-Z =
0.01	0	1	0	0	0	0	0	0
	0.01	0.9998405	9.9841E-05	1E-04	1E-04	1E-04	1E-04	1E-04
	0.02	0.9993623	0.0019872	0.0002	0.0002	0.0002	0.0002	0.0002
	0.03	0.9985658	0.0023987	0.0003	0.0003	0.0003	0.0003	0.0003
	0.04	0.9974517	0.0038891	0.00039	0.00039	0.00039	0.00039	0.00039
	0.05	0.9960211	0.0049801	0.00049	0.00049	0.00049	0.00049	0.00049
	0.06	0.9942754	0.0059655	0.00057	0.00057	0.00057	0.00057	0.00057
	0.07	0.9922162	0.0068453	0.00065	0.00065	0.00065	0.00065	0.00065
	0.08	0.9898456	0.0076187	0.00072	0.00072	0.00072	0.00072	0.00072
	0.09	0.9871657	0.0083449	0.00078	0.00078	0.00078	0.00078	0.00078
	0.1	0.9841791	0.0090179	0.00084	0.00084	0.00084	0.00084	0.00084
	0.11	0.9808866	0.0096479	0.00089	0.00089	0.00089	0.00089	0.00089
	0.12	0.9772974	0.0102377	0.00094	0.00094	0.00094	0.00094	0.00094
	0.13	0.9734088	0.0107977	0.00101	0.00101	0.00101	0.00101	0.00101
	0.14	0.9692285	0.0113265	0.00106	0.00106	0.00106	0.00106	0.00106

FIG 11A1

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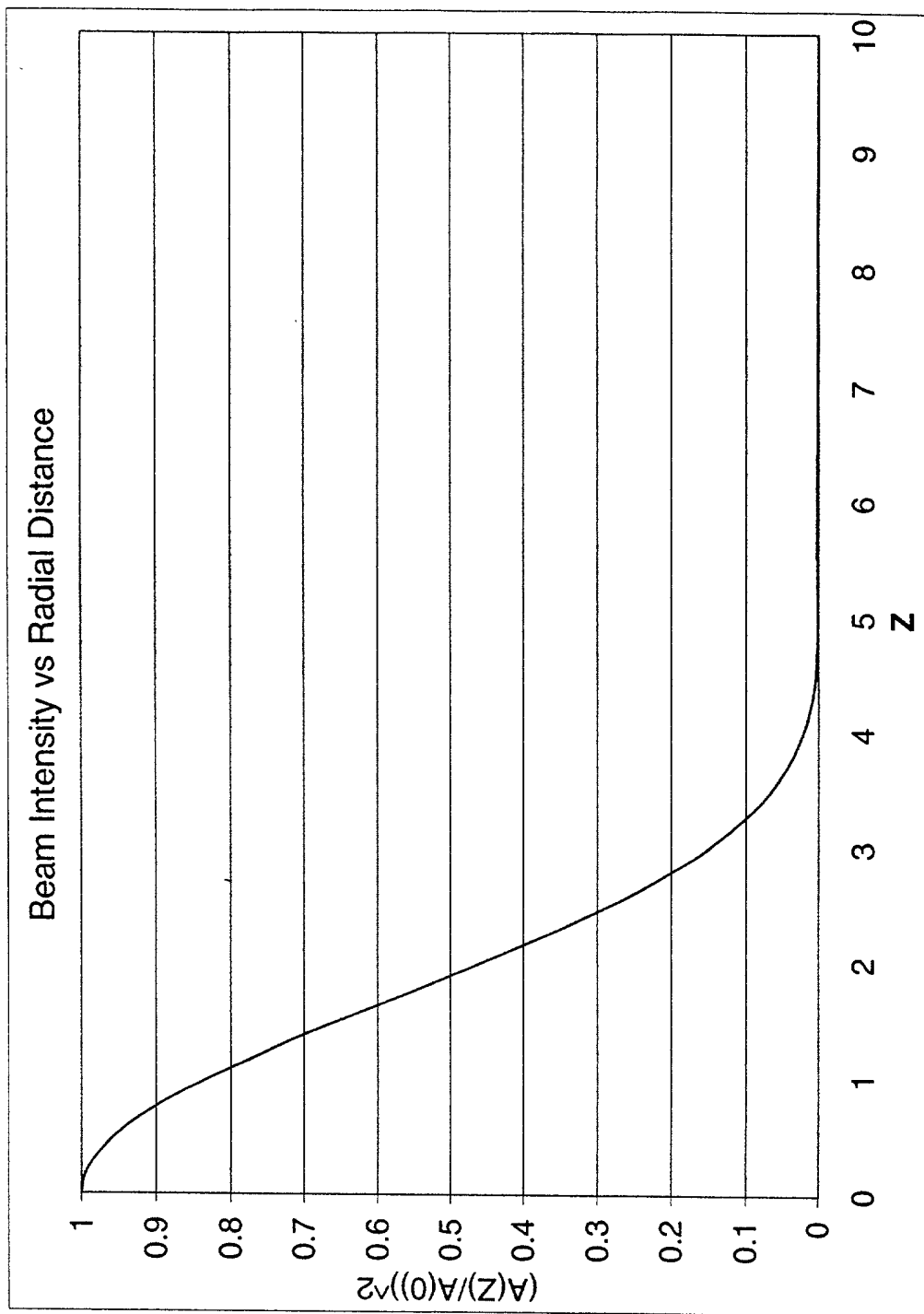


FIG. 11A2

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FIG 11B1

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LD 20200

LD 20200

LD 20200

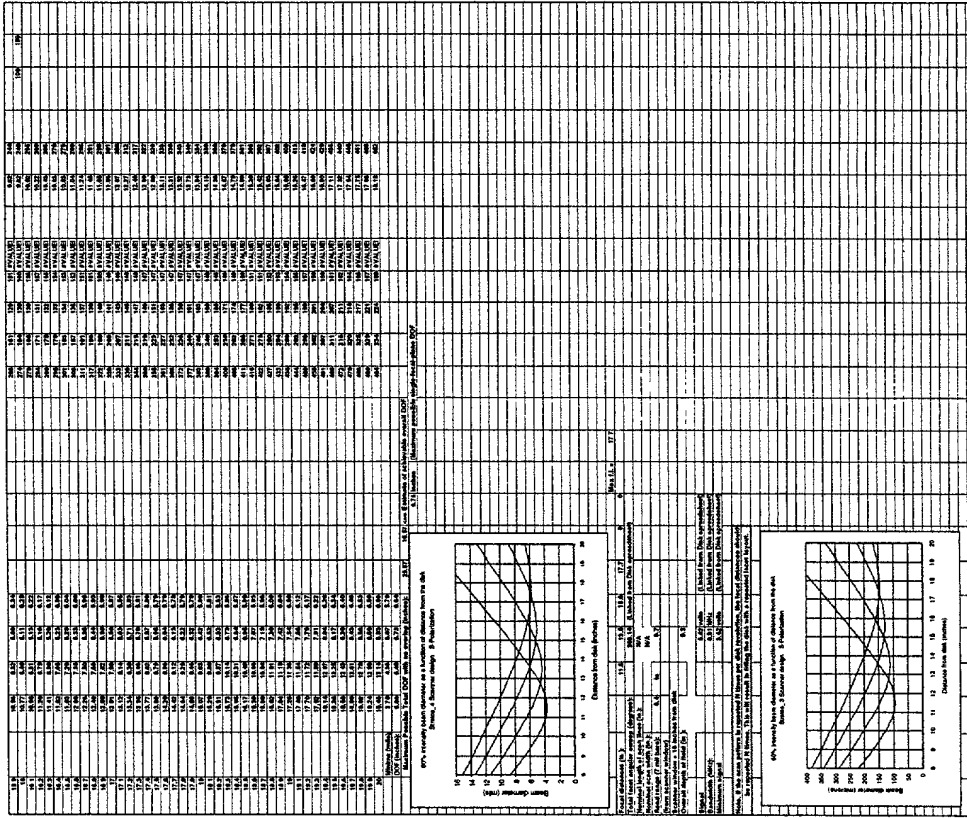


FIG. 11B2

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60% intensity beam diameter as a function of distance from the disk
Stratos_4 Scanner design - S-Polarization

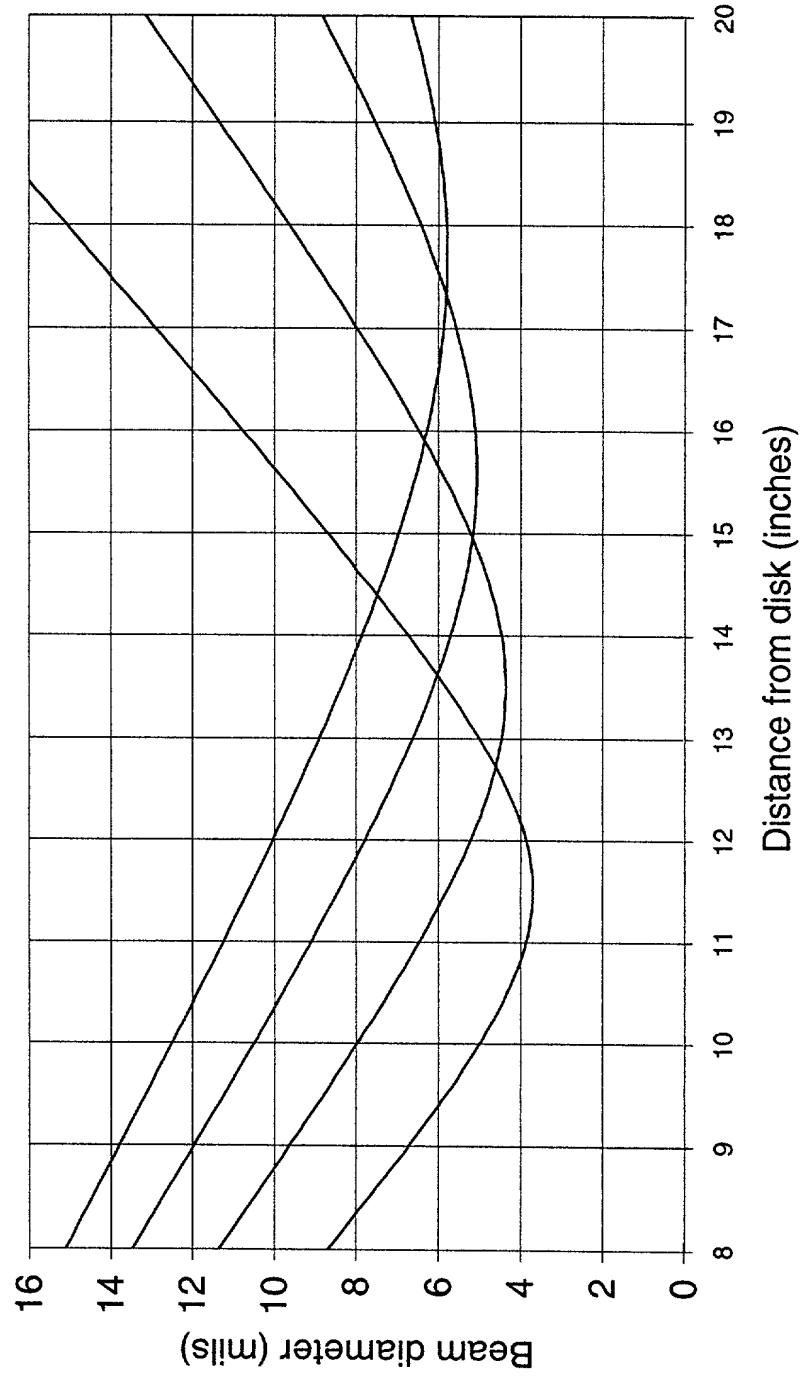


FIG. 11B3

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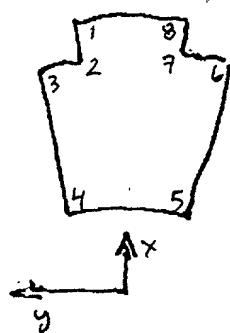


FIG. 12A1

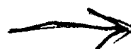


FIG. 12A2

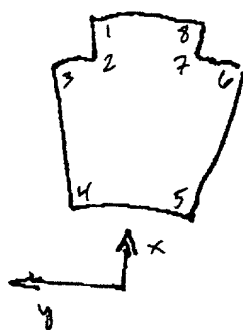


FIG. 12B1

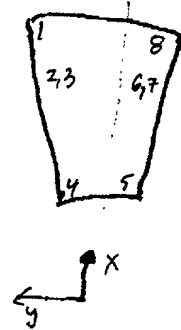


FIG. 12B2

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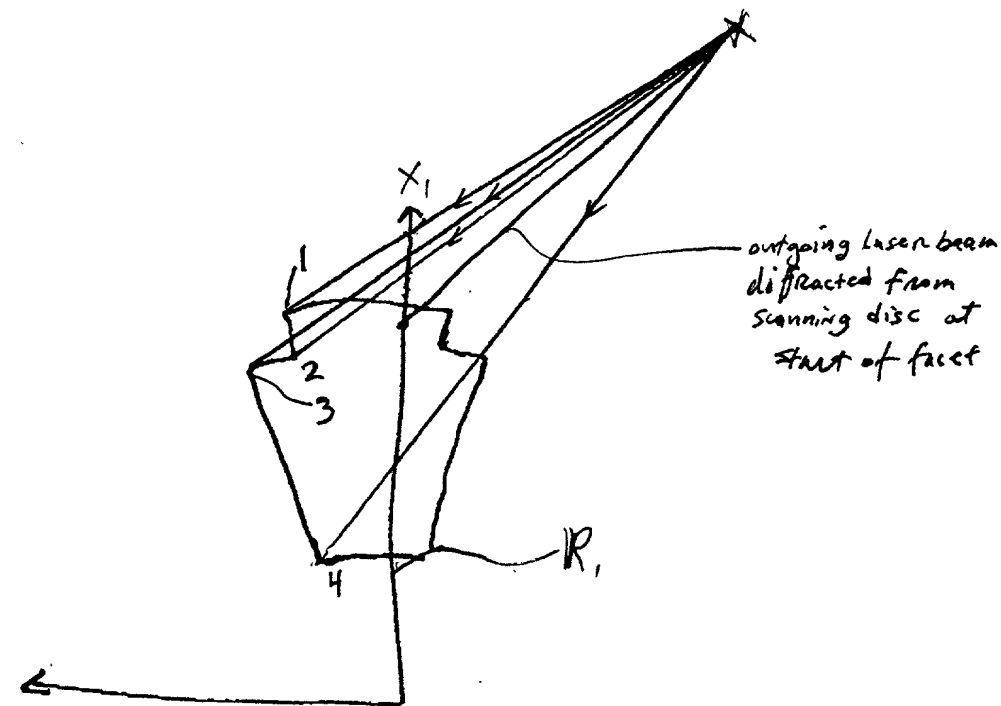


FIG. 12C1

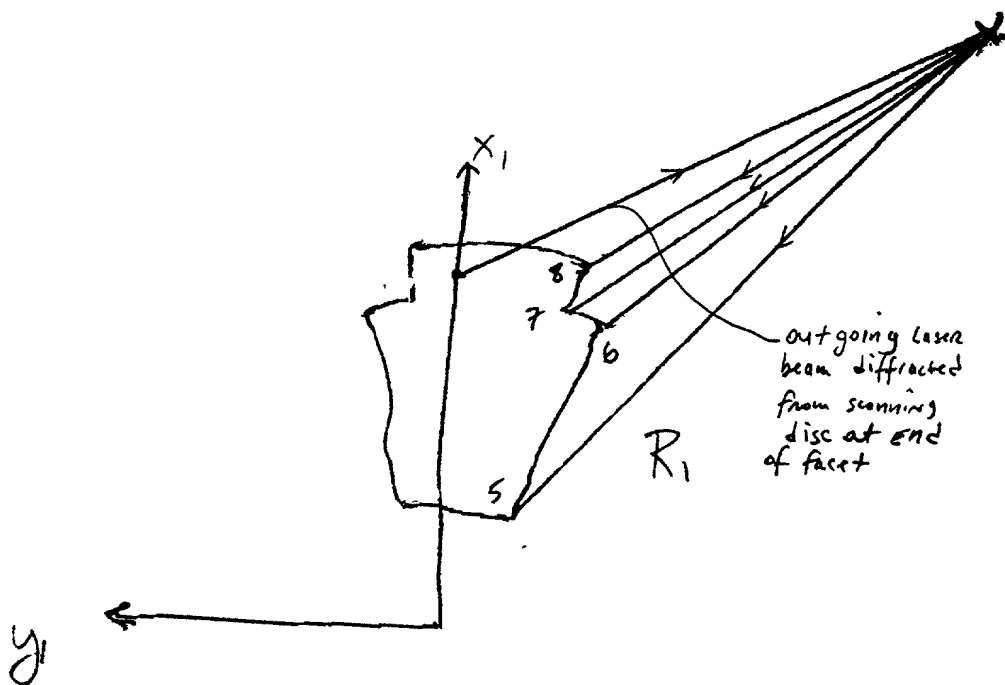


FIG. 12C2

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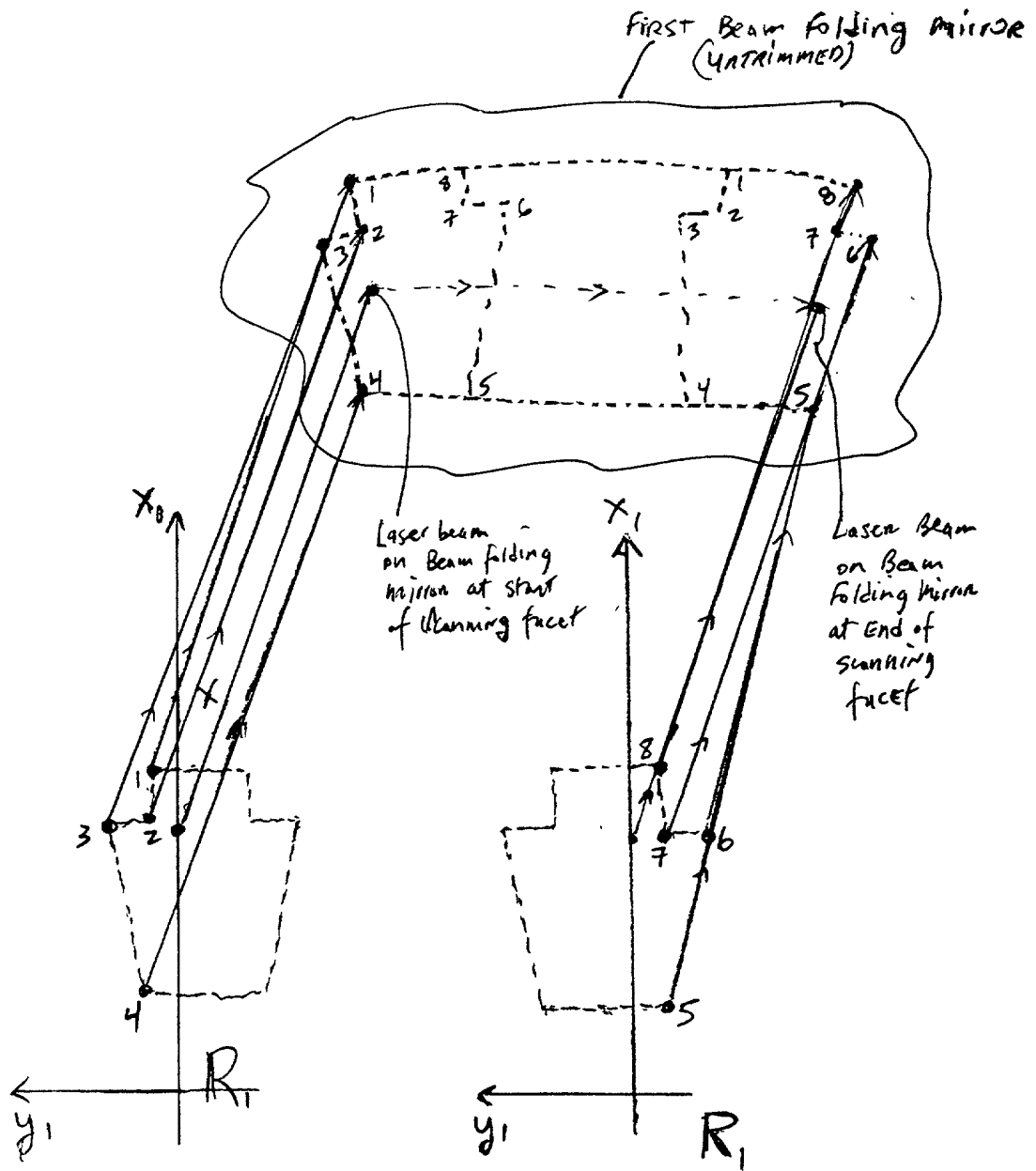


FIG 12D

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	A	B	C	D	E	F	G	H	I	J
75		1			2			3		
76		Facet			Facet			Facet		
77	G1	8			10			12		
78	Point 1	3.94874	-0.02294	2.12380	3.83250	0.07718	2.09937	3.75358	0.10925	2.09325
79	Point 2	3.65113	-0.12038	2.16443	3.53978	-0.02665	2.14166	3.45010	0.00887	2.13498
80	Point 3	3.61581	-0.03502	2.14098	3.53978	-0.02665	2.14166	3.44555	0.02059	2.13175
81	Point 4	2.64691	-0.40575	2.28887	2.88384	-0.25930	2.23643	2.44051	-0.31915	2.27208
82	Point 5	2.79472	-1.59304	2.62907	3.02644	-1.72489	2.65801	2.54066	-1.56107	2.63017
83	Point 6	3.81419	-2.04371	2.71867	3.69455	-2.02106	2.71697	3.56179	-2.02254	2.72286
84	Point 7	3.82907	-1.96478	2.69504	3.69455	-2.02106	2.71697	3.56439	-2.01174	2.71960
85	Point 8	4.13065	-2.08452	2.71758	3.98553	-2.15005	2.74265	3.86380	-2.14515	2.74622
86	Point 9	3.94874	-0.02294	2.12380	3.83250	0.07718	2.09937	3.75358	0.10925	2.09325
87	Start of scan line	4.02545	-0.67817	2.31174	3.92247	-0.62341	2.30000	3.82454	-0.57134	2.28883
88	Middle of rotation	4.02545	-0.67817	2.31174	3.92247	-0.62341	2.30000	3.82454	-0.57134	2.28883
89	End of scan line	4.04162	-1.16307	2.45250	3.92934	-1.15960	2.45580	3.81937	-1.12321	2.44999
90										

FIG 13A1

MR1

Station 1

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	A	B	C	D	E	F	G	H	I	J
91		Facet 7			Facet 9			Facet 11		
92 G2										
93	Point 1	4.02247	2.19033	2.58609	3.91799	2.45353	2.76685	3.80802	2.74420	2.96322
94	Point 2	3.79236	2.11753	2.69195	3.69690	2.36537	2.86040	3.58337	2.64904	3.05579
95	Point 3	3.78639	2.20453	2.73451	3.69690	2.36537	2.86040	3.58162	2.66095	3.06217
96	Point 4	3.05197	1.92230	3.05003	3.21262	2.17226	3.06533	2.85731	2.34705	3.35743
97	Point 5	2.64347	-0.27369	2.31221	2.81913	-0.34045	2.17660	2.54140	-0.10460	2.44937
98	Point 6	3.25774	-0.84215	1.68794	3.25935	-0.70440	1.74867	3.23044	-0.61969	1.80401
99	Point 7	3.29896	-0.76438	1.69797	3.25935	-0.70440	1.74867	3.23562	-0.60869	1.80582
100	Point 8	3.50262	-0.93172	1.50046	3.46547	-0.87482	1.54830	3.45674	-0.77127	1.59994
101	Point 9	4.02247	2.19033	2.58609	3.91799	2.45353	2.76685	3.80802	2.74420	2.96322
102	Start of scan line	3.88910	1.13139	2.19201	3.81752	1.25640	2.29108	3.73628	1.40993	2.40874
103	Middle of rotation	3.83943	0.57926	1.97459	3.76954	0.54210	2.00000	3.70069	0.50549	2.02503
104	End of scan line	3.77386	0.09914	1.79899	3.72144	0.14315	1.85024	3.66728	0.18290	1.90064
105										

FIG. 13A2

MR1

Station 1

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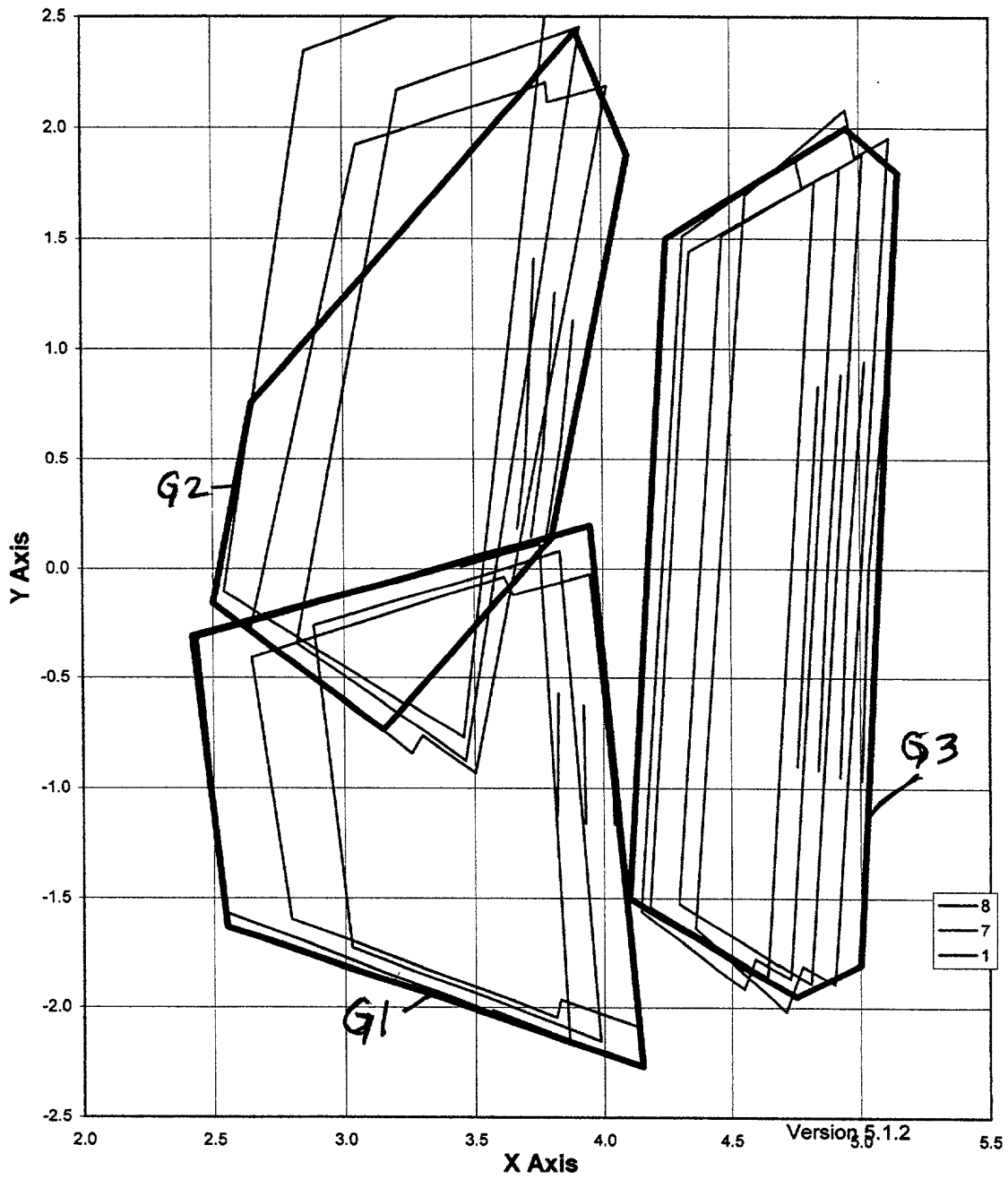
Station 1
MR1

	A	B	C	D	E	F	G	H	I	J	K	L	M
106		Facet 1			Facet 2			Facet 3			Facet 4		
107	G3												
108	Point 1	5.11617	1.95380	1.89155	5.01400	1.88093	1.96715	4.92433	1.81870	2.03365	4.82799	1.75935	2.10576
109	Point 2	4.98460	1.86904	1.98969	4.88136	1.79109	2.06571	4.77964	1.72980	2.14196	4.68407	1.66502	2.21298
110	Point 3	4.94695	2.08109	2.03847	4.88064	1.79549	2.06667	4.75362	1.86942	2.17507	4.68407	1.66502	2.21298
111	Point 4	4.55990	1.69707	2.31542	4.46955	1.51422	2.37191	4.31720	1.51260	2.49402	4.34215	1.44090	2.46771
112	Point 5	4.35785	-1.63559	2.18575	4.29296	-1.52325	2.24765	4.14486	-1.55897	2.36336	4.17995	-1.53887	2.33696
113	Point 6	4.71038	-2.01784	1.86940	4.88022	-1.90322	1.91239	4.54753	-1.91413	2.00915	4.50146	-1.76326	2.05933
114	Point 7	4.77395	-1.80620	1.83693	4.88147	-1.79883	1.91177	4.59009	-1.77513	1.98718	4.50146	-1.76326	2.05933
115	Point 8	4.89971	-1.89063	1.72862	4.80732	-1.88882	1.80291	4.72764	-1.86391	1.86903	4.63750	-1.85821	1.94186
116	Point 9	5.11617	1.95380	1.89155	5.01400	1.88093	1.96715	4.92433	1.81870	2.03365	4.82799	1.75935	2.10576
117	Start of scan line	5.11614	1.00830	1.80878	5.02116	0.94389	1.87935	4.92928	0.88565	1.94798	4.84129	0.83137	2.01383
118	Middle of rotation	5.03523	0.00000	1.78542	4.95474	0.00000	1.85000	4.87537	0.00000	1.91369	4.79689	0.00000	1.97666
119	End of scan line	5.00607	-0.96140	1.72464	4.92129	-0.94701	1.79393	4.83778	-0.91710	1.86356	4.76656	-0.89961	1.93026
120													

FIG. 13A3

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Station 1 M1- XY Plane



Station 1

MR1.xy

FIG. 13A4

Station 1 M1 - XZ Plane

Station 1 M1 - XZ Plane

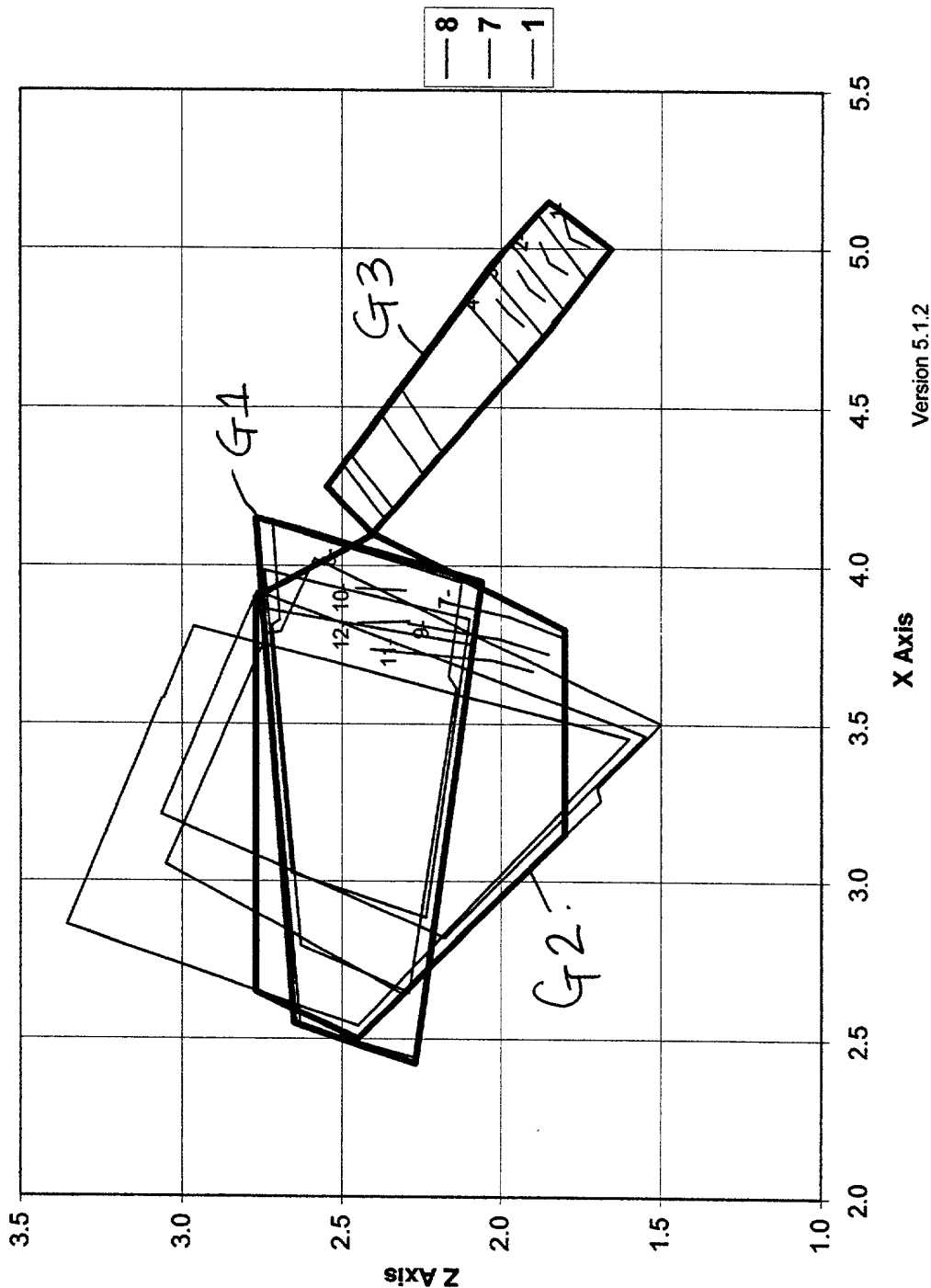


FIG. 13A5

MR1.xz

Station 1

Station 1 M1 - YZ Plane

Station 1 M1 - YZ Plane

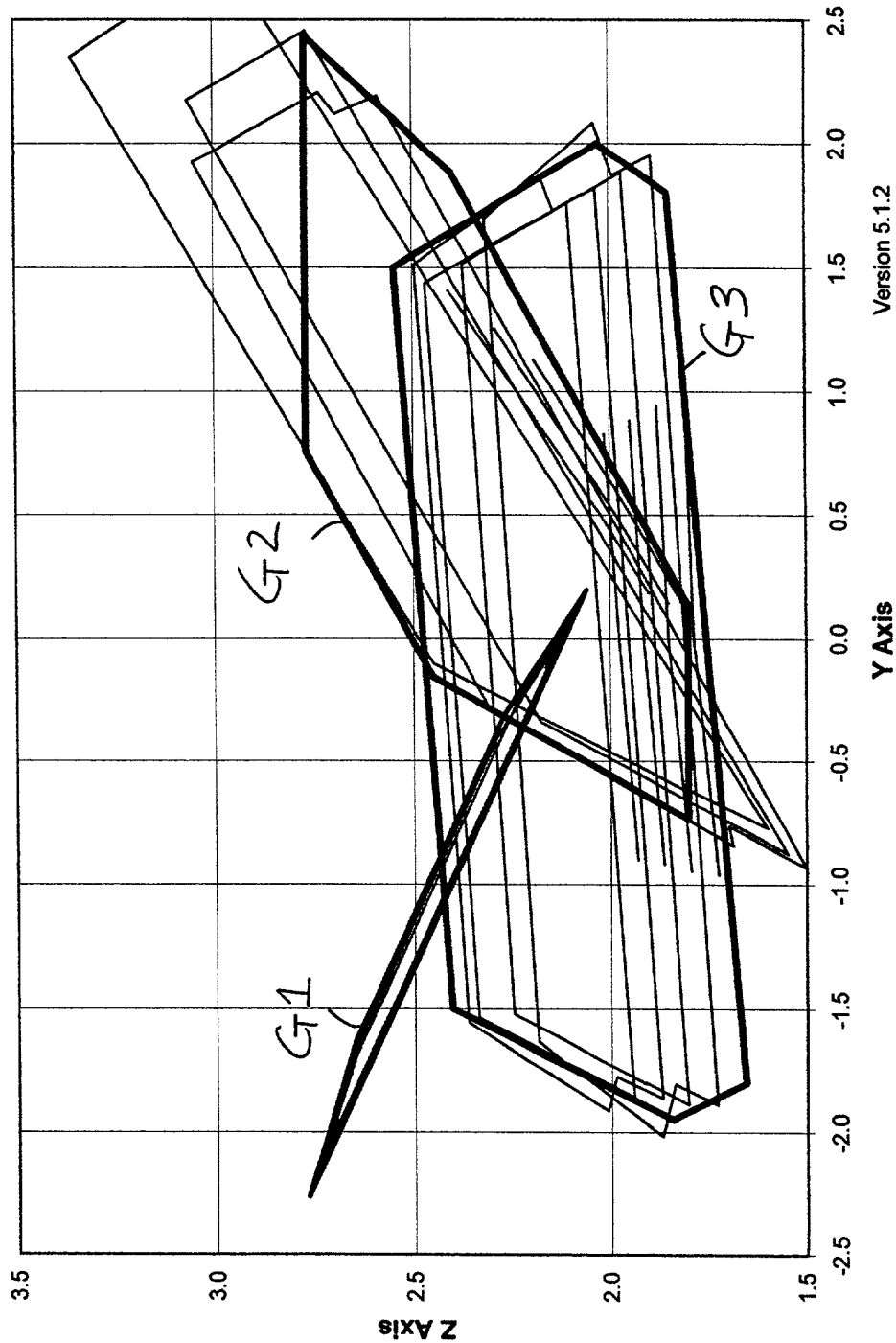


FIG. 13A6

Station 1

MR1.yz4/3/00

Station 1
MR2

	A	B	C	D	E	F	G	H	I	J
91		Facet			Facet			Facet		
92	G2	7			9			11		
93	Point 1	3.38194	4.20092	1.75395	3.24016	4.43917	2.01655	3.11010	4.72655	2.34142
94	Point 2	3.16298	4.26385	1.78738	3.03125	4.49361	2.04162	2.88665	4.78740	2.37142
95	Point 3	3.16739	4.30137	1.83403	3.03125	4.49361	2.04162	2.88663	4.79258	2.37774
96	Point 4	2.50443	4.46930	1.90767	2.59900	4.60627	2.09349	2.21545	4.97231	2.46415
97	Point 5	1.39822	2.79582	-0.35302	1.44696	2.82994	-0.30174	1.08385	3.11226	-0.02918
98	Point 6	1.81707	2.39729	-0.75633	1.73748	2.57459	-0.55577	1.56833	2.71448	-0.41858
99	Point 7	1.85982	2.41646	-0.72451	1.73748	2.57459	-0.55577	1.57414	2.71711	-0.41422
100	Point 8	2.00251	2.29151	-0.84867	1.87437	2.45426	-0.67547	1.73191	2.58895	-0.53935
101	Point 9	3.38194	4.20092	1.75395	3.24016	4.43917	2.01655	3.11010	4.72655	2.34142
102	Start of scan line	3.14045	3.84670	1.27398	3.00728	4.05126	1.49719	2.86346	4.28889	1.75864
103	Middle of rotation	2.81784	3.26851	0.50471	2.60000	3.30000	0.50000	2.37384	3.33269	0.49511
104	End of scan line	2.37758	2.63817	-0.35149	2.22734	2.77029	-0.22004	2.06736	2.89843	-0.09537
105										

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FIG. 13B2

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FIG 13B3

	A	B	C	D	E	F	G	H	I	J	K	L	M
106		Facet 1			Facet 2			Facet 3			Facet 4		
107													
108	Point 1	4.36645	2.65376	0.19632	4.13039	2.57939	0.16456	3.89207	2.57127	0.13136	3.63985	2.49916	0.09731
109	Point 2	4.22328	2.62785	0.17673	3.98981	2.54937	0.14541	3.72893	2.54596	0.10897	3.48484	2.46924	0.07610
110	Point 3	4.17479	2.80928	0.16686	3.98888	2.55291	0.14522	3.69351	2.66161	0.10205	3.48464	2.46924	0.07610
111	Point 4	3.78746	2.62732	0.11577	3.58353	2.46410	0.09002	3.24144	2.51989	0.04122	3.13971	2.40274	0.02898
112	Point 5	3.59706	-1.89846	0.16825	3.42901	-1.80124	0.14108	3.10957	-1.84718	0.09718	3.03925	-1.79742	0.08649
113	Point 6	4.00140	-2.16622	0.22737	3.86105	-1.97527	0.20449	3.58373	-2.08109	0.16749	3.40752	-1.93323	0.14032
114	Point 7	4.06710	-1.99138	0.23359	3.86230	-1.97181	0.20460	3.62849	-1.96892	0.17186	3.40752	-1.93323	0.14032
115	Point 8	4.22016	-2.04815	0.25597	4.01328	-2.03180	0.22675	3.80192	-2.02808	0.19711	3.57430	-1.99474	0.16470
116	Point 9	4.36645	2.65376	0.19632	4.13039	2.57939	0.16456	3.89207	2.57127	0.13136	3.63985	2.49916	0.09731
117	Start of scan line	4.40361	1.87032	0.21487	4.17745	1.84317	0.18369	3.94222	1.82246	0.15114	3.70025	1.80404	0.11760
118	Middle of rotation	4.29670	0.23013	0.22786	4.10000	0.25000	0.20000	3.89313	0.27090	0.17070	3.67474	0.29297	0.13978
119	End of scan line	4.30920	-1.28070	0.25535	4.10701	-1.28789	0.22718	3.89234	-1.26997	0.19685	3.66999	-1.27076	0.16575
120													

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Station 1 M2- XY Plane

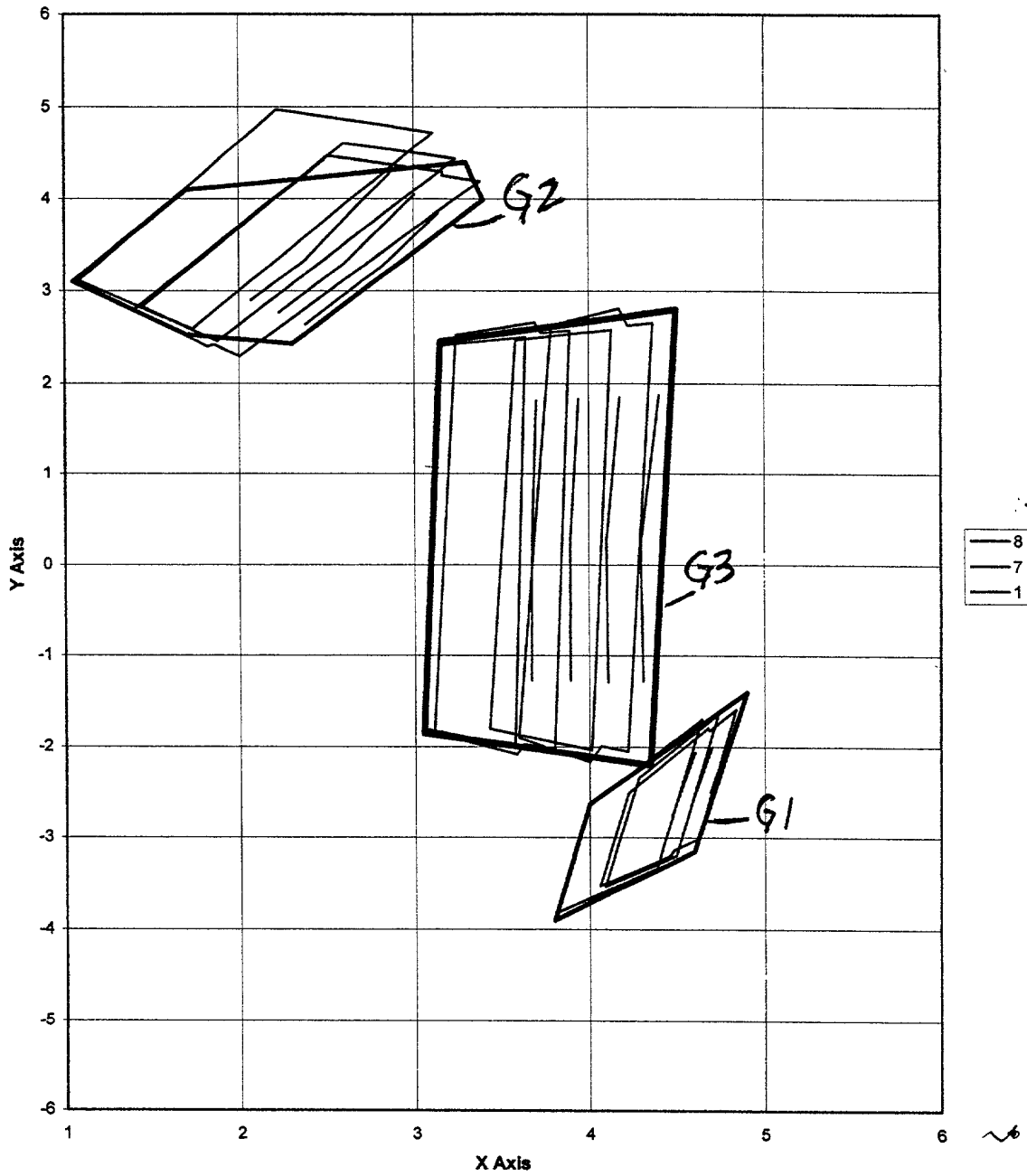


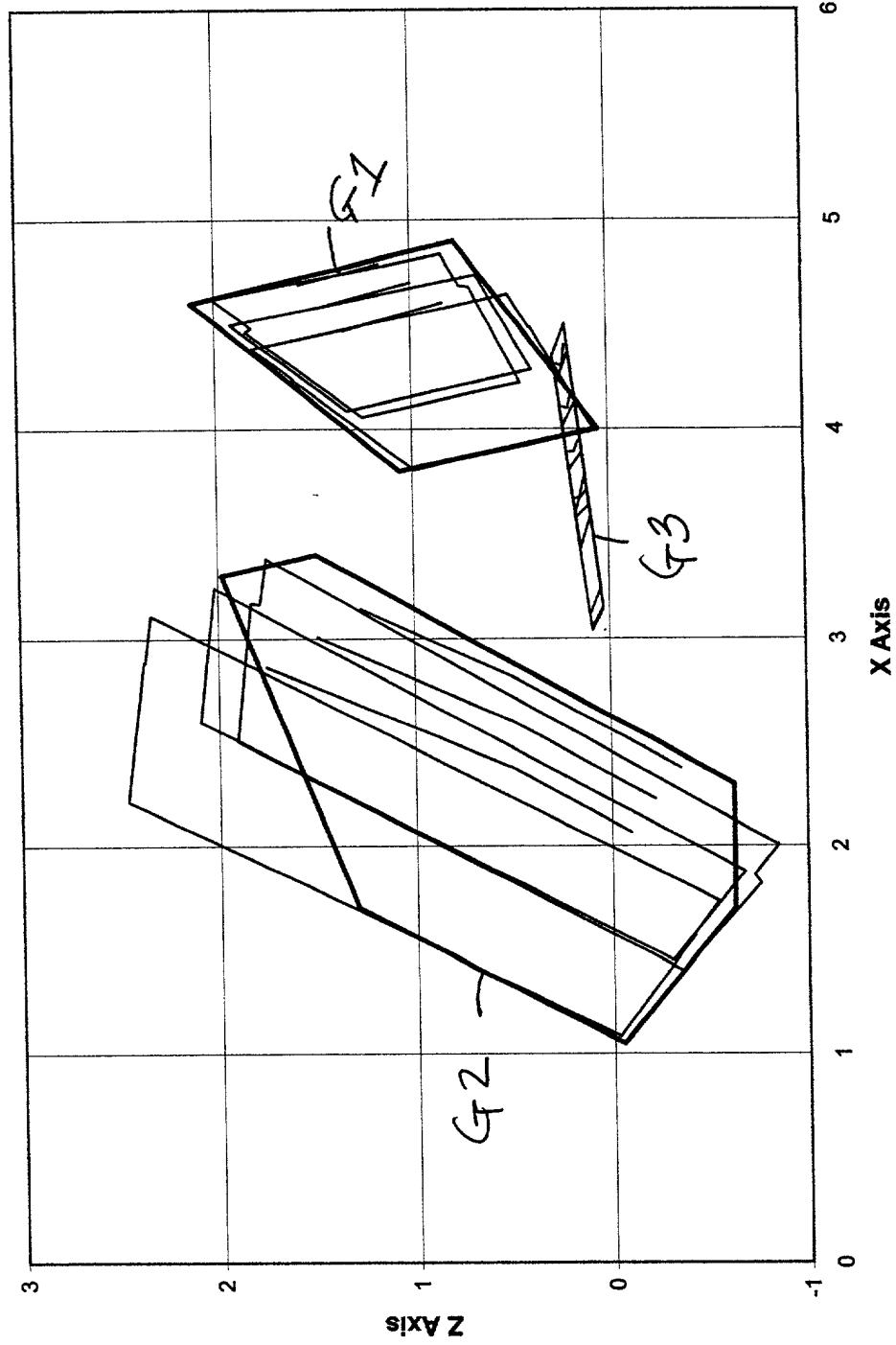
FIG. 13B4

Station 1

MR2.xv

Station 1 M2 - XZ Plane

Station 1 M2 - XZ Plane



FLG. 13B5

MR2.XZ

Station 1

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8
7
1

Station 1 M2 - YZ Plane

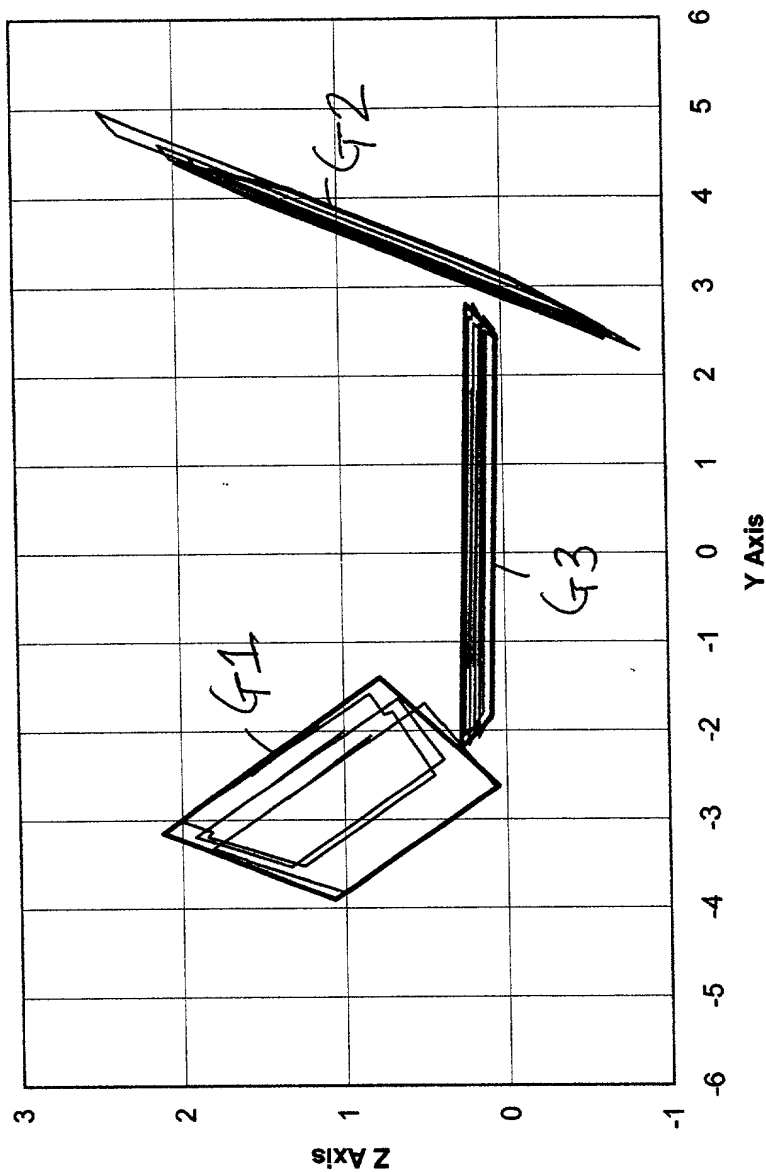


FIG. 13B6

MR2.yz

Station 1

When using this report it must be clear that the data is only for the purpose of the report and should not be used for any other purpose.

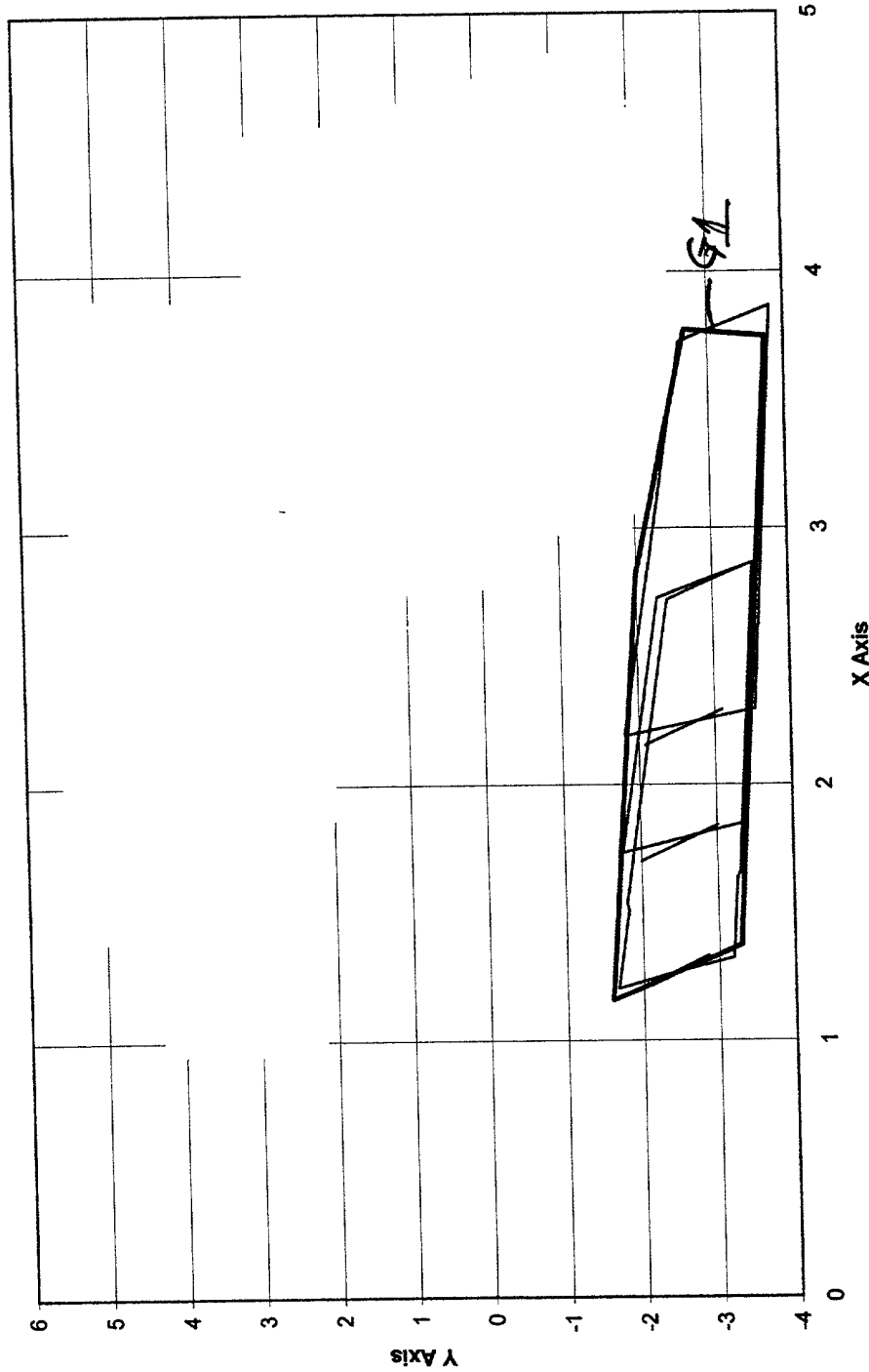
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	A	B	C	D	E	F	G	H	I	J
76		Facet			Facet			Facet		
77	G1	8			10			12		
78	Point 1	1.20537	-1.67340	0.83287	1.73454	-1.76256	0.57847	2.18607	-1.81295	0.33975
79	Point 2	1.50717	-1.82194	0.77007	2.01252	-1.90575	0.52600	2.50076	-1.97962	0.28421
80	Point 3	1.53373	-1.80077	0.73570	2.01252	-1.90575	0.52600	2.50470	-1.97622	0.27888
81	Point 4	2.71992	-2.40114	0.50283	2.72609	-2.27331	0.39129	3.72651	-2.62604	0.06549
82	Point 5	2.86809	-3.52973	1.36131	2.87153	-3.57274	1.39541	3.86534	-3.82116	0.98584
83	Point 6	1.66004	-3.29877	1.91900	2.13984	-3.43596	1.73579	2.62296	-3.60007	1.57321
84	Point 7	1.63442	-3.25853	1.90105	2.13984	-3.43596	1.73579	2.61924	-3.59386	1.57029
85	Point 8	1.32257	-3.19447	2.04127	1.85089	-3.38194	1.87021	2.29384	-3.53522	1.72352
86	Point 9	1.20537	-1.67340	0.83287	1.73454	-1.76256	0.57847	2.18607	-1.81295	0.33975
87	Start of scan line	1.19058	-1.90430	1.03659	1.70000	-2.00000	0.80000	2.15170	-2.08486	0.59022
88	Middle of rotation	1.19058	-1.90430	1.03659	1.70000	-2.00000	0.80000	2.15170	-2.08486	0.59022
89	End of scan line	1.33110	-2.85916	1.75349	1.84105	-3.01433	1.56667	2.29073	-3.10310	1.36142
90										

FIG. 13C1

Station 1 M3-XY Plane

Station 1 M3-XY Plane



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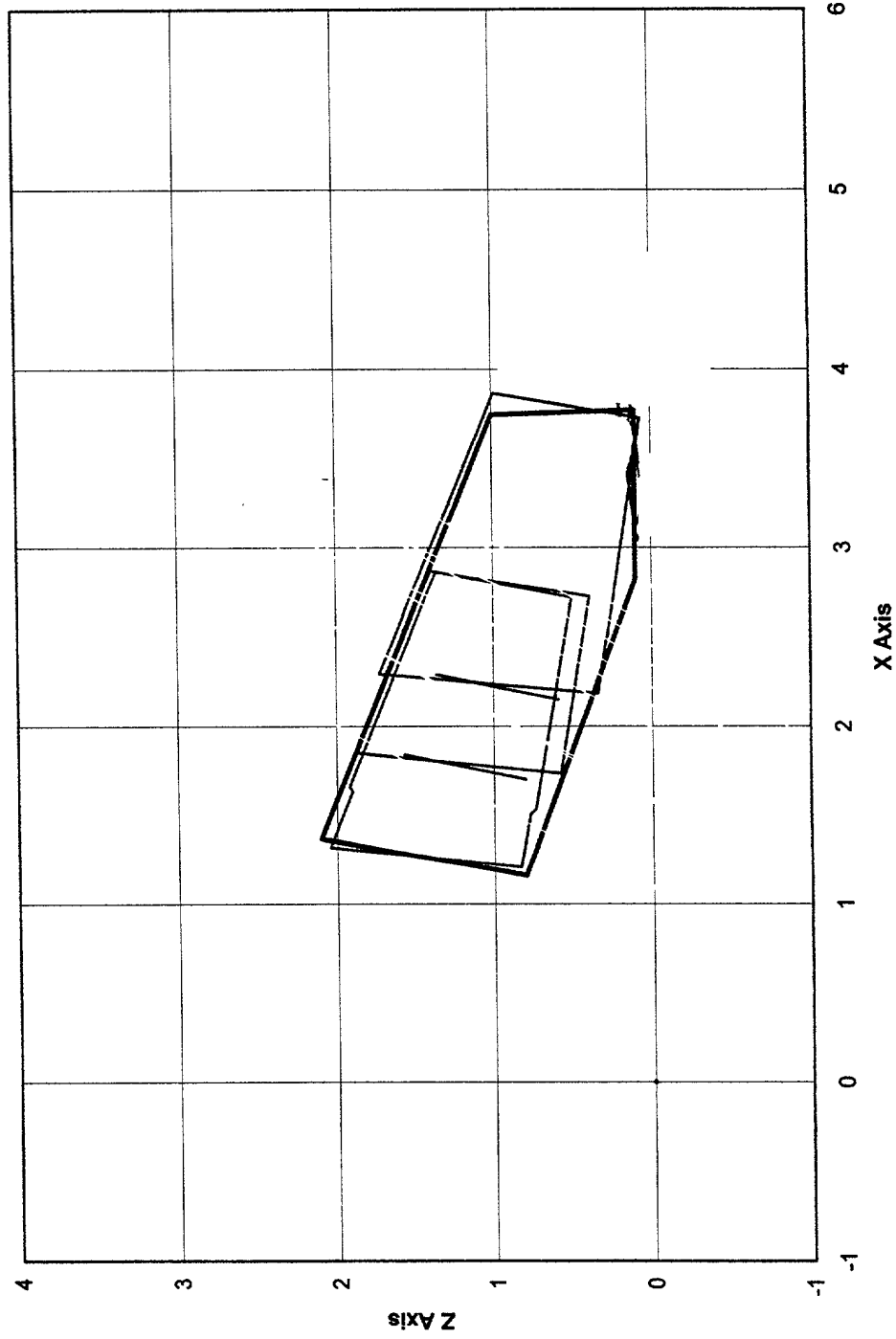
FIG. 13C2

MR3.xy

Station 1

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the back of the page for the back of the page.

Station 1 M3 - XZ Plane



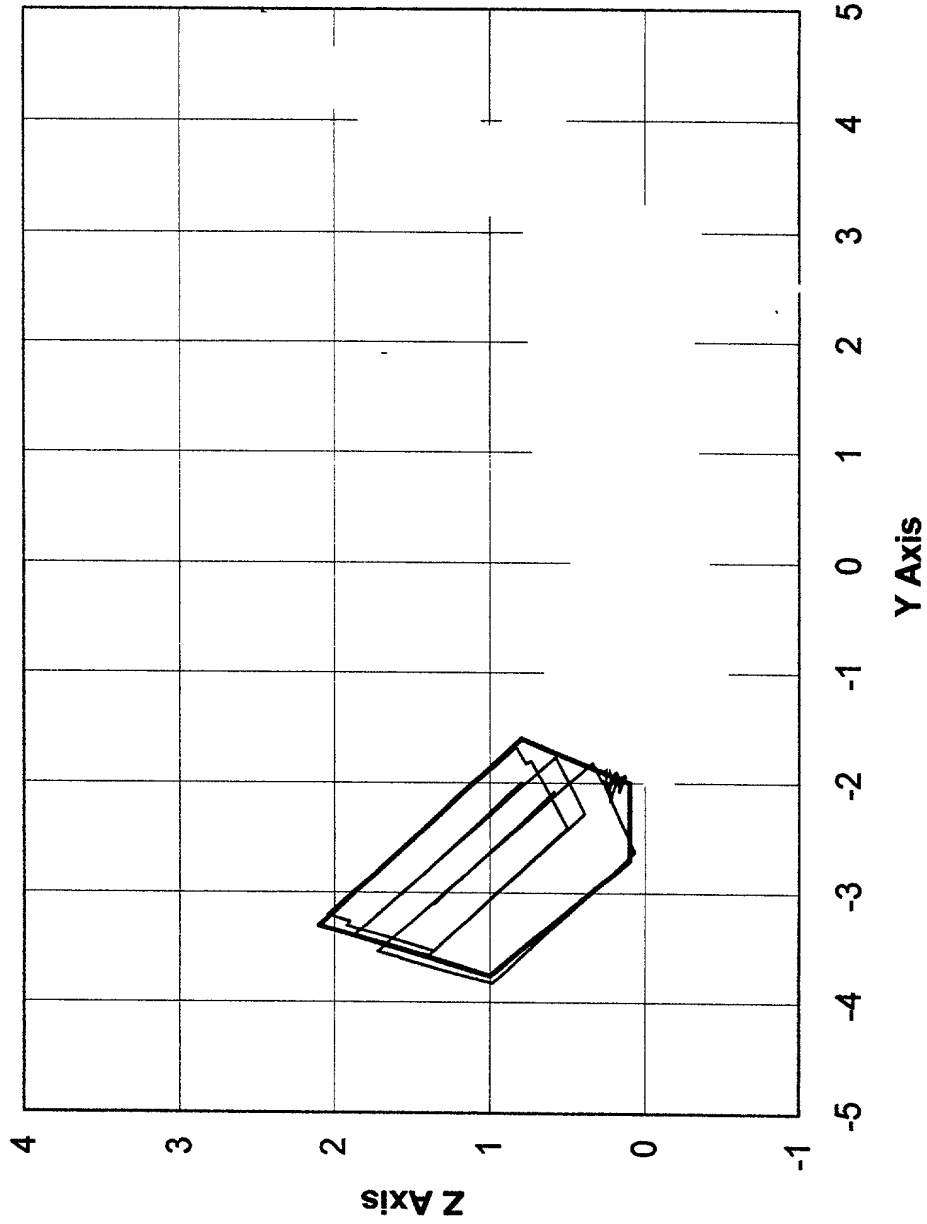
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FIG. 13C3

Station 1

MR3.xz

Station 1 M3 - YZ Plane



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FIG. 13C4

MR3.yz

Station 1

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	A	B	C	D	E	F	G	H	I	J
75		1			2			3		
76		Facet			Facet			Facet		
77	G1	8			10			12		
78	Point 1	1.20537	-1.67340	0.83287	1.73454	-1.76256	0.57847	2.18607	-1.81295	0.33975
79	Point 2	1.50717	-1.82194	0.77007	2.01252	-1.90575	0.52600	2.50076	-1.97962	0.28421
80	Point 3	1.53373	-1.80077	0.73570	2.01252	-1.90575	0.52600	2.50470	-1.97622	0.27888
81	Point 4	2.71992	-2.40114	0.50283	2.72609	-2.27331	0.39129	3.72651	-2.62604	0.06549
82	Point 5	2.86809	-3.52973	1.36131	2.87153	-3.57274	1.39541	3.86534	-3.82116	0.98584
83	Point 6	1.66004	-3.29877	1.91900	2.13984	-3.43596	1.73579	2.62296	-3.60007	1.57321
84	Point 7	1.63442	-3.25853	1.90105	2.13984	-3.43596	1.73579	2.61924	-3.59386	1.57029
85	Point 8	1.32257	-3.19447	2.04127	1.85089	-3.38194	1.87021	2.29384	-3.53522	1.72352
86	Point 9	1.20537	-1.67340	0.83287	1.73454	-1.76256	0.57847	2.18607	-1.81295	0.33975
87	Start of scan line	1.19058	-1.90430	1.03659	1.70000	-2.00000	0.80000	2.15170	-2.08486	0.59022
88	Middle of rotation	1.19058	-1.90430	1.03659	1.70000	-2.00000	0.80000	2.15170	-2.08486	0.59022
89	End of scan line	1.33110	-2.85916	1.75349	1.84105	-3.01433	1.56667	2.29073	-3.10310	1.36142
90										

FIG. 13D1

[illegible][illegible]

FIG. 14A1

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FIG. 14B1

The first step in the process of creating a new product is to identify a market need. This is often done through market research, which involves gathering information about the target market and its needs. Once a market need has been identified, the next step is to develop a concept for a product that meets that need. This is often done through brainstorming and prototyping. Once a concept has been developed, the next step is to create a business plan for the product. This plan should outline the costs of production, the pricing strategy, and the marketing strategy. Once a business plan has been created, the next step is to secure funding for the product. This can be done through a variety of methods, including crowdfunding, venture capital, and bank loans. Once funding has been secured, the next step is to manufacture the product. This is often done through a contract manufacturer. Once the product has been manufactured, the next step is to distribute it to the market. This can be done through a variety of methods, including direct sales, retail, and online sales. Finally, the last step in the process is to monitor the product's performance in the market and make any necessary adjustments.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
106	Facet	1		Facet	2		Facet	3		Facet	4		Facet	5		Facet	6		
107	G3																		
108	Point 1	0.48237	0.26978	4.65503	0.44811	0.22157	4.49179	0.44458	0.17770	4.30775	0.44954	0.12535	3.93952	0.44834	0.02505	3.52125	0.44891	-0.08994	
109	Point 2	0.68874	0.35963	0.24652	4.50103	0.37345	4.19344	0.37132	0.15017	4.14124	0.37427	0.10044	3.74647	0.37395	-0.00784	3.32508	0.37322	-0.12337	
110	Point 3	4.62719	0.54611	0.18746	4.50622	0.37701	0.19626	0.48638	0.14124	4.14124	0.37427	0.10044	3.74763	0.37603	-0.00933	3.37822	0.37322	-0.12337	
111	Point 4	4.18942	0.22763	0.15239	4.04652	0.15472	4.39612	0.13371	0.05244	3.76359	0.20355	0.04045	3.17535	0.15541	-0.10566	2.98199	0.24084	-0.18182	
112	Point 5	4.21967	0.24588	0.04826	4.17480	-2.32613	0.83855	3.90727	0.74455	3.89193	-2.41913	0.78528	3.20187	-2.00045	0.50656	3.10697	-1.64117	0.26043	
113	Point 6	4.69167	0.29257	0.93567	4.59519	0.26863	0.98272	4.37431	0.93261	4.25097	-2.53955	0.91466	3.68317	-2.18530	0.70794	3.47166	-1.74631	0.48874	
114	Point 7	4.74716	-2.30530	0.99034	4.59627	-2.46466	0.96200	4.41150	-2.33743	4.25821	-2.52955	0.91666	3.68551	-2.15168	0.70712	3.47166	-1.74631	0.48874	
115	Point 8	4.89443	-2.35176	1.04332	4.67053	-2.51341	1.04484	4.57811	-2.39443	4.90529	-2.57881	0.97193	4.05339	-2.20429	0.77533	3.69342	-1.81036	0.56463	
116	Point 9	4.82498	0.42337	0.28978	4.65503	0.44811	0.22157	4.49179	0.44458	0.17770	0.43075	0.12593	3.93952	0.44834	0.02505	3.52125	0.44891	-0.08994	
117	Start of scan line	4.82442	0.00000	0.38908	4.68490	0.00000	0.34528	4.50000	0.00000	0.30000	0.43201	0.00000	0.25305	0.00000	0.15325	0.35687	0.00000	0.04390	
118	Middle of rotation	4.82442	0.00000	0.38907	4.68490	0.00000	0.34528	4.50000	0.00000	0.30000	0.43201	0.00000	0.25305	0.00000	0.15325	0.35687	0.00000	0.04390	
119	End of scan line	4.94361	-1.51167	0.82998	4.80210	-1.65515	0.82987	4.62188	-1.53817	0.74860	4.47185	-1.71403	0.75509	-1.40033	0.56428	3.67805	-1.09574	0.37020	

FIG. 14C1

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FIG. 14D1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
106		Facet 1						Facet 3			Facet 4				Facet 5		Facet 6		
107	G3	4.82498	0.44237	0.28978	4.65503	0.44811	0.22157	4.49179	0.44459	0.17770	4.30775	0.44854	0.12583	3.93952	0.44834	0.02505	3.52125	0.44891	-0.08894
108		4.68874	0.36963	0.24652	4.50103	0.37345	0.19944	4.31949	0.37132	0.15017	4.14124	0.37427	0.10044	3.74647	0.37385	-0.00784	3.32508	0.37322	-0.12337
109		4.62719	0.54611	0.18746	4.50022	0.37701	0.19826	4.28811	0.48536	0.11104	4.14124	0.37427	0.10044	3.74516	0.37803	-0.00833	3.32508	0.37322	-0.12337
110		4.18842	0.22763	0.15299	4.04652	0.15472	0.13371	3.79612	0.20147	0.05234	3.76359	0.20353	0.04285	3.17535	0.15541	-0.10568	2.98199	0.24084	-0.18182
111		4.29176	-2.24588	0.84526	4.17480	-2.32513	0.83955	3.30727	-2.24907	0.74455	3.89193	-2.41913	0.78626	3.29187	-2.00865	0.50956	3.10607	-1.64117	0.36043
112		4.69167	-2.48257	1.02567	4.59519	-2.46863	0.99272	4.37431	-2.45921	0.92926	4.25097	-2.52955	0.91466	3.86517	-2.15188	0.70794	3.47166	-1.74831	0.48974
113		4.74716	-2.30530	0.99034	4.59627	-2.46486	0.99200	4.41150	-2.39443	0.90686	4.25097	-2.52955	0.91466	3.86651	-2.20429	0.70712	3.47166	-1.74831	0.48974
114		4.39443	0.42377	0.28978	4.74099	-2.51341	1.04484	4.57811	-2.39443	0.90686	4.25097	-2.52955	0.91466	3.86651	-2.20429	0.70712	3.47166	-1.74831	0.48974
115		4.82498	0.44237	0.28978	4.65503	0.44811	0.22157	4.49179	0.44459	0.17770	4.30775	0.44854	0.12583	3.93952	0.44834	0.02505	3.52125	0.44891	-0.08894
116		4.82498	0.44237	0.28978	4.65503	0.44811	0.22157	4.49179	0.44459	0.17770	4.30775	0.44854	0.12583	3.93952	0.44834	0.02505	3.52125	0.44891	-0.08894
117		4.82498	0.44237	0.28978	4.65503	0.44811	0.22157	4.49179	0.44459	0.17770	4.30775	0.44854	0.12583	3.93952	0.44834	0.02505	3.52125	0.44891	-0.08894
118		4.82498	0.44237	0.28978	4.65503	0.44811	0.22157	4.49179	0.44459	0.17770	4.30775	0.44854	0.12583	3.93952	0.44834	0.02505	3.52125	0.44891	-0.08894
119		4.82498	0.44237	0.28978	4.65503	0.44811	0.22157	4.49179	0.44459	0.17770	4.30775	0.44854	0.12583	3.93952	0.44834	0.02505	3.52125	0.44891	-0.08894
120		4.82498	0.44237	0.28978	4.65503	0.44811	0.22157	4.49179	0.44459	0.17770	4.30775	0.44854	0.12583	3.93952	0.44834	0.02505	3.52125	0.44891	-0.08894

A	B	C	D	E	F	G	H	I	J
	1			2			3		
	Facet			Facet			Facet		
76	8			10			12		
77 G1									
78	Point 1	-0.72592	5.72516	5.75912	-0.72344	5.84633	5.57831	-0.71341	5.95933
79	Point 2	-0.82205	5.83575	5.62511	-0.81564	5.95052	5.42747	-0.80763	6.07464
80	Point 3	-0.77284	5.83618	5.62511	-0.81564	5.95052	5.42531	-0.80078	6.07461
81	Point 4	-1.10363	6.18430	5.33722	-1.01369	6.17433	4.95130	-1.10154	6.43794
82	Point 5	-4.23150	6.76631	5.37166	-4.30055	6.82654	4.94319	-4.40584	7.12079
83	Point 6	-4.38204	6.55370	5.60403	-4.39100	6.69722	5.33088	-4.56037	6.90578
84	Point 7	-4.33627	6.53803	5.60403	-4.39100	6.69722	5.33250	-4.55423	6.90349
85	Point 8	-4.37550	6.46837	5.71110	-4.43267	6.63764	5.45432	-4.60159	6.83568
86	Point 9	-0.72592	5.72516	5.75912	-0.72344	5.84633	5.57831	-0.71341	5.95933
87	Start of scan line	-1.21758	5.79678	5.80609	-1.19815	5.91380	5.61623	-1.19501	6.03397
88	Middle of rotation	-1.72998	5.89717	5.80862	-1.62630	6.00000	5.61481	-1.52325	6.10220
89	End of scan line	-3.76722	6.34386	5.72650	-3.84809	6.50794	5.48105	-3.93033	6.68100
90									

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FIG. 15A1

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	A	B	C	D	E	F	G	H	I	J
91		Facet						Facet		
92	G2	7			9			11		
93	Point 1	5.95867	4.37550	6.46837	5.71110	4.43267	6.63764	5.45432	4.60159	6.83568
94	Point 2	5.83655	4.33627	6.53803	5.60403	4.39100	6.69722	5.33250	4.55423	6.90349
95	Point 3	5.82668	4.38204	6.55370	5.60403	4.39100	6.69722	5.33088	4.56037	6.90578
96	Point 4	5.44406	4.23150	6.76631	5.37166	4.30055	6.82654	4.94319	4.40584	7.12079
97	Point 5	5.35054	1.10363	6.18430	5.33722	1.01369	6.17433	4.95130	1.10154	6.43794
98	Point 6	5.79099	0.77284	5.83618	5.62511	0.81564	5.95052	5.42531	0.80078	6.07461
99	Point 7	5.80752	0.82205	5.83575	5.62511	0.81564	5.95052	5.42747	0.80763	6.07464
100	Point 8	5.95032	0.72592	5.72516	5.75912	0.72344	5.84633	5.57831	0.71341	5.95933
101	Point 9	5.95867	4.37550	6.46837	5.71110	4.43267	6.63764	5.45432	4.60159	6.83568
102	Start of scan line	5.95828	3.76722	6.34386	5.72650	3.84809	6.50794	5.48105	3.93033	6.68100
103	Middle of rotation	6.00363	1.72998	5.89717	5.80862	1.62630	6.00000	5.61481	1.52325	6.10220
104	End of scan line	5.99623	1.21758	5.79678	5.80609	1.19815	5.91380	5.61623	1.19501	6.03397
105										

FIG. 15A2

100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120
 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
106	Facet	1			Facet	2		Facet	3		Facet	4		Facet	5		Facet	6	
107	103	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
108	Point 1	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
109	Point 2	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
110	Point 3	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
111	Point 4	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
112	Point 5	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
113	Point 6	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
114	Point 7	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
115	Point 8	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
116	Point 9	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
117	Start of scan line	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
118	Middle of rotation	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
119	End of scan line	7.38483	0.36621	3.60327	7.31635	0.35437	3.81936	7.25212	0.36293	4.03445	7.17687	0.35054	4.26573	7.03506	0.35981	4.74102	6.87159	0.34512	5.26544
120																			

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FIG. 15A3

	A	B	C	D	E	F	G	H	I	J
75		1			2			3		
76		Facet			Facet			Facet		
77	G1	8			10			12		
78	Point 1	4.09124	-2.79379	3.18258	3.69818	-2.92223	3.24153	3.24420	-3.02504	3.23954
79	Point 2	4.01214	-2.84817	3.23834	3.63983	-2.96298	3.28365	3.16721	-3.07489	3.28909
80	Point 3	3.98793	-2.83938	3.21628	3.63983	-2.96298	3.28365	3.16395	-3.07385	3.28633
81	Point 4	3.75453	-3.01427	3.40306	3.51489	-3.05022	3.37382	2.92561	-3.22999	3.44252
82	Point 5	5.22942	-4.63324	6.41511	5.13129	-4.70247	6.48702	4.61719	-4.94977	6.68618
83	Point 6	5.73352	-4.52709	6.42964	5.43660	-4.63666	6.49349	5.13524	-4.83496	6.69231
84	Point 7	5.72839	-4.50585	6.39515	5.43660	-4.63666	6.49349	5.13464	-4.83220	6.68785
85	Point 8	5.89808	-4.46565	6.39317	5.58735	-4.60417	6.49668	5.31142	-4.79243	6.68904
86	Point 9	4.09124	-2.79379	3.18258	3.69818	-2.92223	3.24153	3.24420	-3.02504	3.23954
87	Start of scan line	4.26503	-2.91167	3.42532	3.84166	-3.00957	3.42658	3.41287	-3.12422	3.45169
88	Middle of rotation	4.65630	-3.25182	4.08689	4.20000	-3.30000	4.00000	3.71220	-3.35150	3.90711
89	End of scan line	5.66800	-4.26040	5.99609	5.37598	-4.41413	6.12962	5.05851	-4.57920	6.27163
90										

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FIG. 15B1

324/335

	A	B	C	D	E	F	G	H	I	J
90										
91		Facet			Facet			Facet		
92	G2	7			9			11		
93	Point 1	5.89808	4.46565	6.39317	5.58735	4.60417	6.49668	5.31142	4.79243	6.68904
94	Point 2	5.72839	4.50585	6.39515	5.43660	4.63666	6.49349	5.13464	4.83220	6.68785
95	Point 3	5.73352	4.52709	6.42964	5.43660	4.63666	6.49349	5.13524	4.83496	6.69231
96	Point 4	5.22942	4.63324	6.41511	5.13129	4.70247	6.48702	4.61719	4.94977	6.68618
97	Point 5	3.75453	3.01427	3.40306	3.51489	3.05022	3.37382	2.92561	3.22999	3.44252
98	Point 6	3.98793	2.83938	3.21628	3.63983	2.96298	3.28365	3.16395	3.07385	3.28633
99	Point 7	4.01214	2.84817	3.23834	3.63983	2.96298	3.28365	3.16721	3.07489	3.28909
100	Point 8	4.09124	2.79379	3.18258	3.69818	2.92223	3.24153	3.24420	3.02504	3.23954
101	Point 9	5.89808	4.46565	6.39317	5.58735	4.60417	6.49668	5.31142	4.79243	6.68904
102	Start of scan line	5.66800	4.26040	5.99609	5.37598	4.41413	6.12962	5.05851	4.57920	6.27163
103	Middle of rotation	4.65630	3.25182	4.08689	4.20000	3.30000	4.00000	3.71220	3.35150	3.90711
104	End of scan line	4.26503	2.91167	3.42532	3.84166	3.00957	3.42658	3.41287	3.12422	3.45169
105										

FIG. 15B2

F16.15B3

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	Facet			Facet			Facet			Facet			Facet			Facet		
106				2			3						5			6		
107/103																		
Point 1	7.39483	0.36621	3.60327	7.31635	0.35437	3.81936	7.23212	0.38233	4.03445	7.17887	0.36004	4.28573	7.03508	0.35581	4.74102	6.87159	0.34512	5.26544
Point 2	7.39669	0.30677	3.72290	7.27016	0.29548	3.93269	7.20014	0.30320	4.16542	7.13030	0.29192	4.38726	6.97894	0.30016	4.88759	6.81701	0.28708	5.40695
Point 3	7.35085	0.45214	3.78948	7.27046	0.29830	3.93374	7.20680	0.30685	4.19794	7.13030	0.29192	4.38726	6.97821	0.30364	4.88764	6.81701	0.28708	5.40695
Point 4	7.35085	0.45214	3.78948	7.27046	0.29830	3.93374	7.20680	0.30685	4.19794	7.13030	0.29192	4.38726	6.97821	0.30364	4.88764	6.81701	0.28708	5.40695
Point 5	7.19869	0.19089	3.69330	6.69289	0.24072	3.65544	6.61109	0.16475	4.57132	7.02005	0.15884	4.66313	6.81288	0.12498	5.91804	6.72143	0.18844	5.64749
Point 6	6.67186	-2.71194	3.96930	6.69289	-2.94782	3.65544	6.61109	0.16475	4.57132	7.02005	-2.93734	4.23771	6.38745	-2.80040	4.92441	-2.30648	-3.96948	5.23666
Point 7	6.82335	-2.91744	3.38219	6.76969	-2.95787	3.51184	6.69286	-2.86597	3.80174	6.81698	-3.02659	3.96892	6.47664	-2.92071	4.49196	-2.62941	-3.12902	4.98858
Point 8	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 9	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 10	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 11	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 12	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 13	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 14	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 15	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 16	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 17	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 18	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 19	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 20	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 21	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 22	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 23	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 24	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 25	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 26	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 27	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 28	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 29	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 30	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 31	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 32	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 33	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 34	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 35	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 36	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 37	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 38	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 39	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 40	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 41	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 42	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 43	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 44	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 45	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 46	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 47	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 48	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 49	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 50	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 51	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 52	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900	3.78950	6.61699	-3.02659	3.96892	6.47759	-2.91719	4.49112	-2.62941	-3.12902	4.98858
Point 53	6.86196	-2.76529	3.32225	6.77043	-2.95436	3.51128	6.71818	-2.78900</										

A	B	C	D	E	F	G	H	I	J
75	1			2			3		
76	Facet			Facet			Facet		
77	8			10			12		
78	Point 1	-2.79379	3.18258	3.69818	-2.92223	3.24153	3.24420	-3.02504	3.23954
79	Point 2	-2.84817	3.23834	3.63983	-2.96298	3.28365	3.16721	-3.07489	3.28909
80	Point 3	-2.83938	3.21628	3.63983	-2.96298	3.28365	3.16395	-3.07385	3.28633
81	Point 4	-3.01427	3.40306	3.51489	-3.05022	3.37382	2.92561	-3.22999	3.44252
82	Point 5	-4.63324	6.41511	5.13129	-4.70247	6.48702	4.61719	-4.94977	6.68618
83	Point 6	-4.52709	6.42964	5.43660	-4.63666	6.49349	5.13524	-4.83496	6.69231
84	Point 7	-4.50585	6.39515	5.43660	-4.63666	6.49349	5.13464	-4.83220	6.68785
85	Point 8	-4.46565	6.39317	5.58735	-4.60417	6.49668	5.31142	-4.79243	6.68904
86	Point 9	-2.79379	3.18258	3.69818	-2.92223	3.24153	3.24420	-3.02504	3.23954
87	Start of scan line	-2.91167	3.42532	3.84166	-3.00957	3.42658	3.41287	-3.12422	3.45169
88	Middle of rotation	-3.25182	4.08689	4.20000	-3.30000	4.00000	3.71220	-3.35150	3.90711
89	End of scan line	-4.26040	5.99609	5.37598	-4.41413	6.12962	5.05851	-4.57920	6.27163
90									

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FIG. 15C1

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FIG. 15C2

	A	B	C	D	E	F	G	H	I	J
91		Facet			Facet			Facet		
92	G2	7			9			11		
93	Point 1	5.89808	4.46565	6.39317	5.58735	4.60417	6.49668	5.31142	4.79243	6.68904
94	Point 2	5.72839	4.50585	6.39515	5.43660	4.63666	6.49349	5.13464	4.83220	6.68785
95	Point 3	5.73352	4.52709	6.42964	5.43660	4.63666	6.49349	5.13524	4.83496	6.69231
96	Point 4	5.22942	4.63324	6.41511	5.13129	4.70247	6.48702	4.61719	4.94977	6.68618
97	Point 5	3.75453	3.01427	3.40306	3.51489	3.05022	3.37382	2.92561	3.22999	3.44252
98	Point 6	3.98793	2.83938	3.21628	3.63983	2.96298	3.28365	3.16395	3.07385	3.28633
99	Point 7	4.01214	2.84817	3.23834	3.63983	2.96298	3.28365	3.16721	3.07489	3.28909
100	Point 8	4.09124	2.79379	3.18258	3.69818	2.92223	3.24153	3.24420	3.02504	3.23954
101	Point 9	5.89808	4.46565	6.39317	5.58735	4.60417	6.49668	5.31142	4.79243	6.68904
102	Start of scan line	5.66800	4.26040	5.99609	5.37598	4.41413	6.12962	5.05851	4.57920	6.27163
103	Middle of rotation	4.65630	3.25182	4.08689	4.20000	3.30000	4.00000	3.71220	3.35150	3.90711
104	End of scan line	4.26503	2.91167	3.42532	3.84166	3.00957	3.42658	3.41287	3.12422	3.45169

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FIG. 15C3

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
106		Facet 1			Facet 2			Facet 3			Facet 4			Facet 5			Facet 6		
107	63	7.38463	0.36621	3.60327	7.31635	0.95437	3.61936	7.28212	0.35293	4.03445	7.17687	0.35054	4.26573	7.03508	0.35981	4.74102	6.87169	0.34512	5.26544
108		Point 1	0.30677	3.72290	7.27018	0.29548	3.63289	7.20014	0.30320	4.16842	7.13030	0.29192	4.36726	6.97894	0.30016	4.86659	6.81701	0.28708	5.40695
109		Point 2	0.35065	3.76948	7.27046	0.29630	3.63374	7.20660	0.30665	4.19794	7.13030	0.29192	4.36726	6.97894	0.30016	4.86659	6.81701	0.28708	5.40695
110		Point 3	0.45214	3.76948	7.27046	0.29630	3.63374	7.20660	0.30665	4.19794	7.13030	0.29192	4.36726	6.97894	0.30016	4.86659	6.81701	0.28708	5.40695
111		Point 4	0.10069	4.09695	7.13404	0.12287	4.26827	7.04952	0.16475	4.57132	7.02005	0.15864	4.66313	6.81298	0.12498	5.31804	6.72143	0.16544	5.85479
112		Point 5	0.10069	4.09695	7.13404	0.12287	4.26827	7.04952	0.16475	4.57132	7.02005	0.15864	4.66313	6.81298	0.12498	5.31804	6.72143	0.16544	5.85479
113		Point 6	0.23335	3.69330	6.69289	-2.84072	3.63654	6.61109	-2.79069	3.80174	6.61699	-3.02659	3.96692	6.47664	-2.82071	4.49196	6.28421	-3.12802	4.98868
114		Point 7	0.23335	3.69330	6.69289	-2.84072	3.63654	6.61109	-2.79069	3.80174	6.61699	-3.02659	3.96692	6.47664	-2.82071	4.49196	6.28421	-3.12802	4.98868
115		Point 8	0.23335	3.69330	6.69289	-2.84072	3.63654	6.61109	-2.79069	3.80174	6.61699	-3.02659	3.96692	6.47664	-2.82071	4.49196	6.28421	-3.12802	4.98868
116		Point 9	0.23335	3.69330	6.69289	-2.84072	3.63654	6.61109	-2.79069	3.80174	6.61699	-3.02659	3.96692	6.47664	-2.82071	4.49196	6.28421	-3.12802	4.98868
117		Start of scan line	0.36621	3.60327	7.31635	0.95437	3.61936	7.28212	0.35293	4.03445	7.17687	0.35054	4.26573	7.03508	0.35981	4.74102	6.87169	0.34512	5.26544
118		Middle of rotation	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
119		End of scan line	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
120			-2.11473	3.23472	6.92439	-2.31640	3.41071	6.87855	-2.14504	3.66987	6.77390	-2.39464	3.85394	6.64346	-2.26763	4.53940	6.44631	-2.50435	4.84743

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	A	B	C	D	E	F	G	H	I	J
75		1			2			3		
76		Facet			Facet			Facet		
77	G1	8			10			12		
78	Point 1	4.09124	-2.79379	3.18258	3.69818	-2.92223	3.24153	3.24420	-3.02504	3.23954
79	Point 2	4.01214	-2.84817	3.23834	3.63983	-2.96298	3.28365	3.16721	-3.07489	3.28909
80	Point 3	3.98793	-2.83938	3.21628	3.63983	-2.96298	3.28365	3.16395	-3.07385	3.28633
81	Point 4	3.75453	-3.01427	3.40306	3.51489	-3.05022	3.37382	2.92561	-3.22999	3.44252
82	Point 5	5.22942	-4.63324	6.41511	5.13129	-4.70247	6.48702	4.61719	-4.94977	6.68618
83	Point 6	5.73352	-4.52709	6.42964	5.43660	-4.63666	6.49349	5.13524	-4.83496	6.69231
84	Point 7	5.72839	-4.50585	6.39515	5.43660	-4.63666	6.49349	5.13464	-4.83220	6.68785
85	Point 8	5.89808	-4.46565	6.39317	5.58735	-4.60417	6.49668	5.31142	-4.79243	6.68904
86	Point 9	4.09124	-2.79379	3.18258	3.69818	-2.92223	3.24153	3.24420	-3.02504	3.23954
87	Start of scan line	4.26503	-2.91167	3.42532	3.84166	-3.00957	3.42658	3.41287	-3.12422	3.45169
88	Middle of rotation	4.65630	-3.25182	4.08689	4.20000	-3.30000	4.00000	3.71220	-3.35150	3.90711
89	End of scan line	5.66800	-4.26040	5.99609	5.37598	-4.41413	6.12962	5.05851	-4.57920	6.27163
90										

FIG. 15D1

	A	B	C	D	E	F	G	H	I	J
91		Facet			Facet			Facet		
92	G2	7			9			11		
93	Point 1	5.89808	4.46565	6.39317	5.58735	4.60417	6.49668	5.31142	4.79243	6.68904
94	Point 2	5.72839	4.50585	6.39515	5.43660	4.63666	6.49349	5.13464	4.83220	6.68795
95	Point 3	5.73352	4.52709	6.42964	5.43660	4.63666	6.49349	5.13524	4.83496	6.69231
96	Point 4	5.22942	4.63324	6.41511	5.13129	4.70247	6.48702	4.61719	4.94977	6.68618
97	Point 5	3.75453	3.01427	3.40306	3.51489	3.05022	3.37382	2.92561	3.22999	3.44252
98	Point 6	3.98793	2.83938	3.21628	3.63983	2.96298	3.28365	3.16395	3.07385	3.28633
99	Point 7	4.01214	2.84817	3.23834	3.63983	2.96298	3.28365	3.16721	3.07489	3.28909
100	Point 8	4.09124	2.79379	3.18258	3.69818	2.92223	3.24153	3.24420	3.02504	3.23954
101	Point 9	5.89808	4.46565	6.39317	5.58735	4.60417	6.49668	5.31142	4.79243	6.68904
102	Start of scan line	5.66800	4.26040	5.99609	5.37598	4.41413	6.12962	5.05851	4.57920	6.27163
103	Middle of rotation	4.65630	3.25182	4.08689	4.20000	3.30000	4.00000	3.71220	3.35150	3.90711
104	End of scan line	4.26503	2.91167	3.42532	3.84166	3.00957	3.42658	3.41287	3.12422	3.45169
105										

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FIG. 15D2

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FIG. 15D3

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
106		Facet 1			Facet 2			Facet 3			Facet 4			Facet 5			Facet 6		
107 G3		7.38483	0.36621	3.60327	7.31635	0.35437	3.61936	7.25212	0.36233	4.03445	7.17887	0.35054	4.26573	7.03508	0.35981	4.74102	6.87159	0.34512	5.26544
108	Point 1	7.33669	0.30677	3.72290	7.27018	0.29548	3.93289	7.20014	0.30320	4.16942	7.13030	0.29192	4.39726	6.97694	0.30016	4.89559	6.81701	0.28708	5.40695
109	Point 2	7.35085	0.45214	3.76948	7.27046	0.29630	3.93374	7.20680	0.39685	4.19794	7.13030	0.29192	4.38726	6.97921	0.30354	4.88784	6.81701	0.28708	5.40695
110	Point 3	7.35085	0.19089	4.09695	7.13404	0.12287	4.26827	7.04932	0.16475	4.57132	7.02005	0.15894	4.56313	6.61288	0.12498	5.31804	6.22143	0.18544	5.65479
111	Point 4	7.18669	-2.71194	3.89330	6.69269	-2.84072	3.89654	6.61109	-2.72069	4.17939	6.55131	-2.93734	3.96692	6.38745	-2.80040	4.32441	6.22148	-3.06048	4.98658
112	Point 5	6.78168	-2.91174	3.96219	6.70433	-2.95767	3.51184	6.69266	-2.89697	3.80174	6.61699	-3.02659	3.96692	6.47664	-2.92071	4.49196	6.28421	-3.12902	4.98658
113	Point 6	6.82335	-2.91174	3.96219	6.70433	-2.95767	3.51184	6.69266	-2.89697	3.80174	6.61699	-3.02659	3.96692	6.47664	-2.92071	4.49196	6.28421	-3.12902	4.98658
114	Point 7	6.89198	-2.76539	3.92225	6.70433	-2.95767	3.51184	6.69266	-2.89697	3.80174	6.61699	-3.02659	3.96692	6.47664	-2.92071	4.49196	6.28421	-3.12902	4.98658
115	Point 8	6.89198	-2.76539	3.92225	6.70433	-2.95767	3.51184	6.69266	-2.89697	3.80174	6.61699	-3.02659	3.96692	6.47664	-2.92071	4.49196	6.28421	-3.12902	4.98658
116	Point 9	7.39483	0.36621	3.60327	7.31635	0.35437	3.61936	7.25212	0.36233	4.03445	7.17887	0.35054	4.26573	7.03508	0.35981	4.74102	6.87159	0.34512	5.26544
117	Start of scan line	7.32981	0.00361	3.57345	7.25962	0.00000	3.78335	7.19245	0.00000	4.00000	7.12389	0.00000	4.22381	6.97902	0.00000	4.89680	6.82143	0.00000	5.21120
118	Middle of rotation	7.32981	0.00361	3.57345	7.25962	0.00000	3.78335	7.19245	0.00000	4.00000	7.12389	0.00000	4.22381	6.97902	0.00000	4.89680	6.82143	0.00000	5.21120
119	End of scan line	7.01771	-2.11473	3.23472	6.32439	-2.31640	3.41071	6.37655	-2.14504	3.65987	6.77390	-2.39464	3.65384	6.64346	-2.26763	4.35960	6.44831	-2.50435	4.84743

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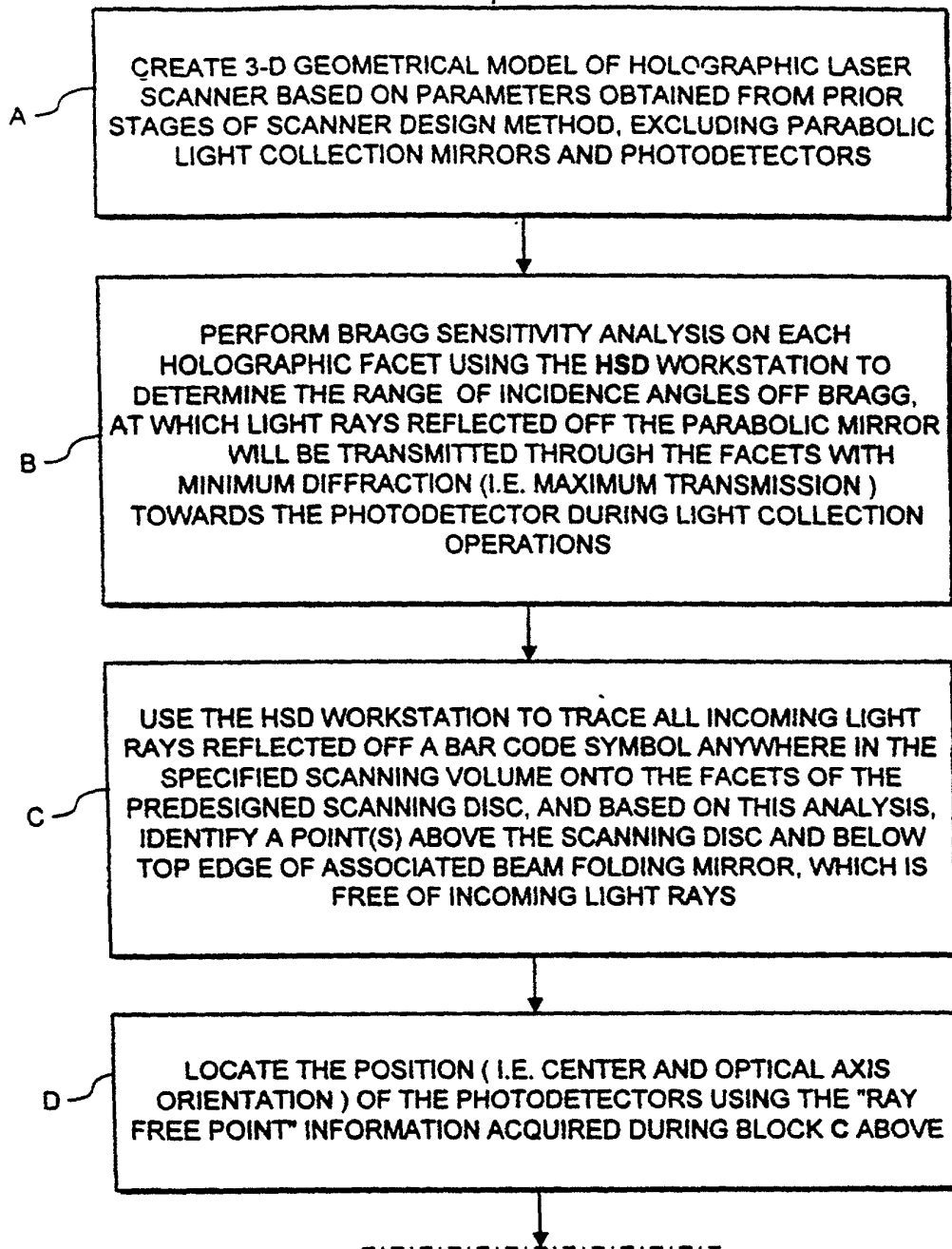


FIG. 16A

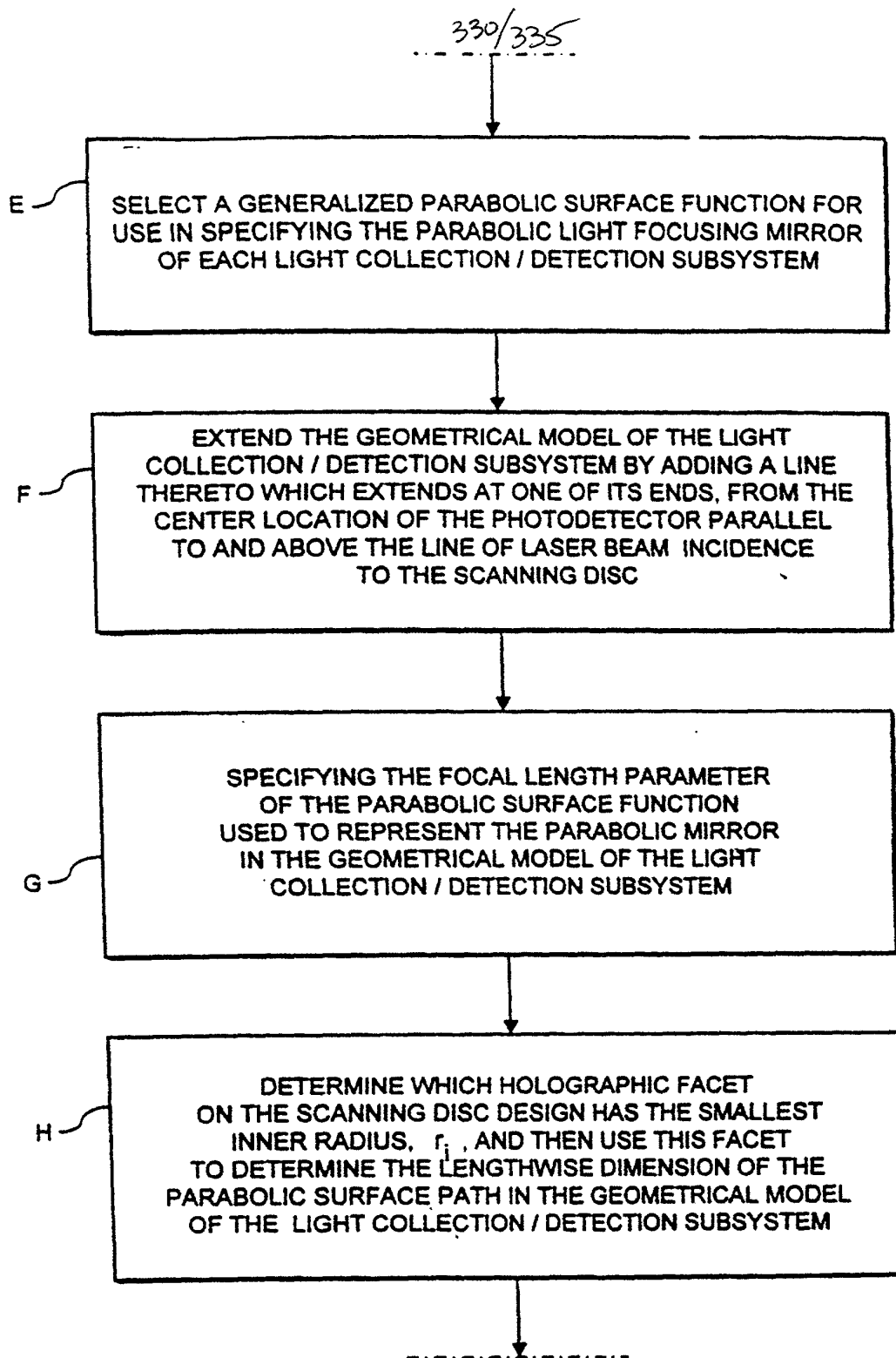


FIG. 16B

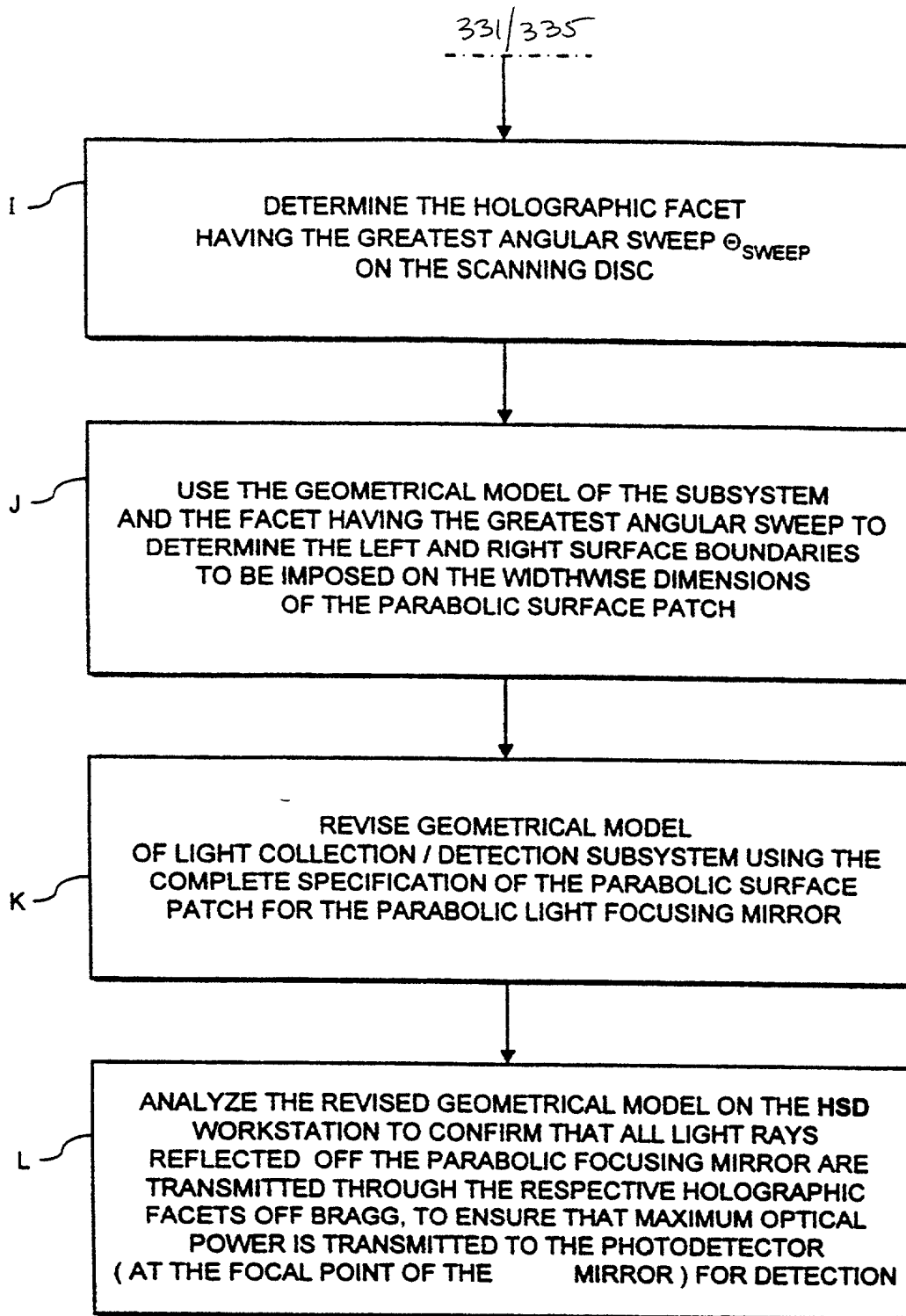
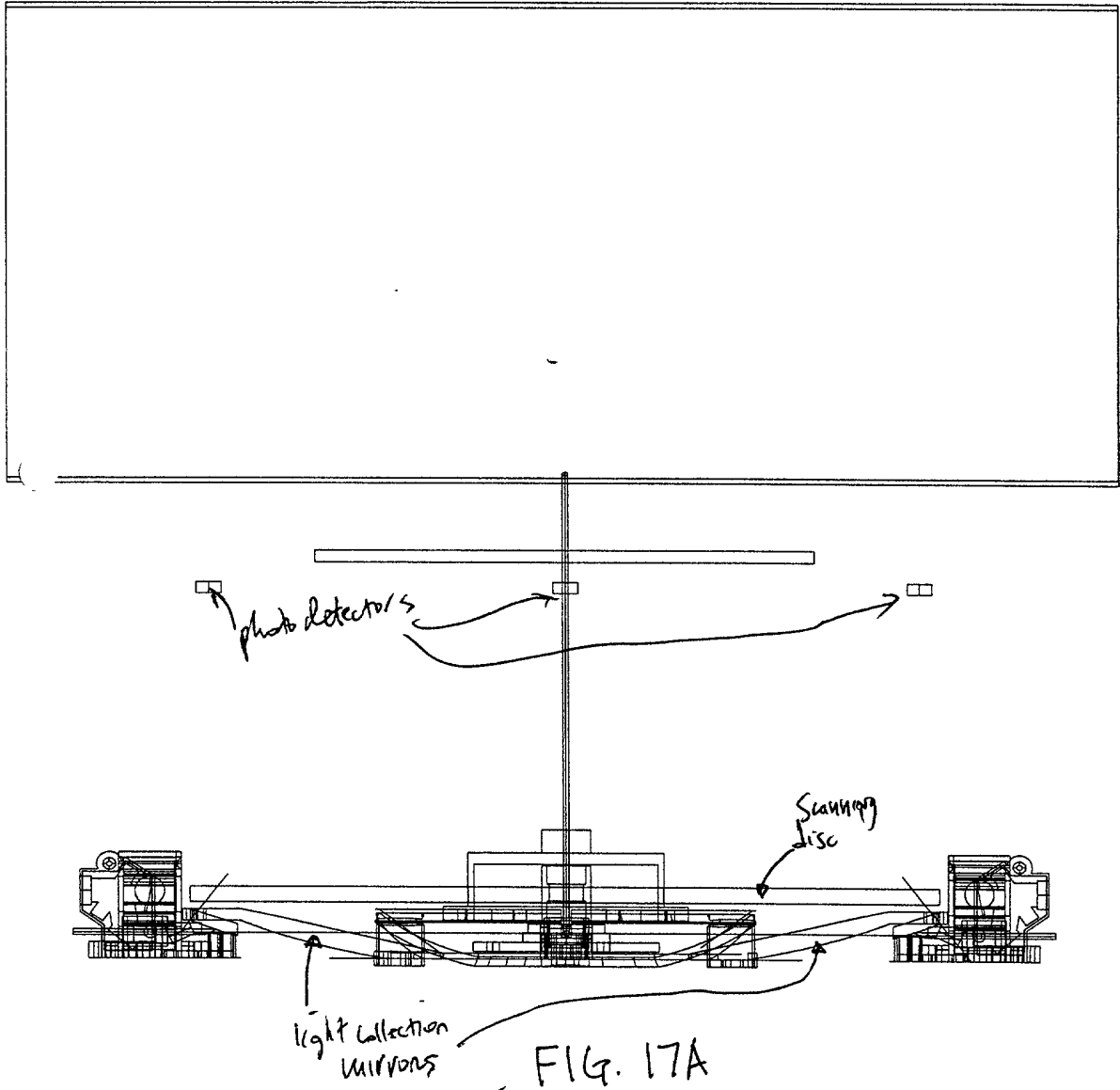


FIG. 16C

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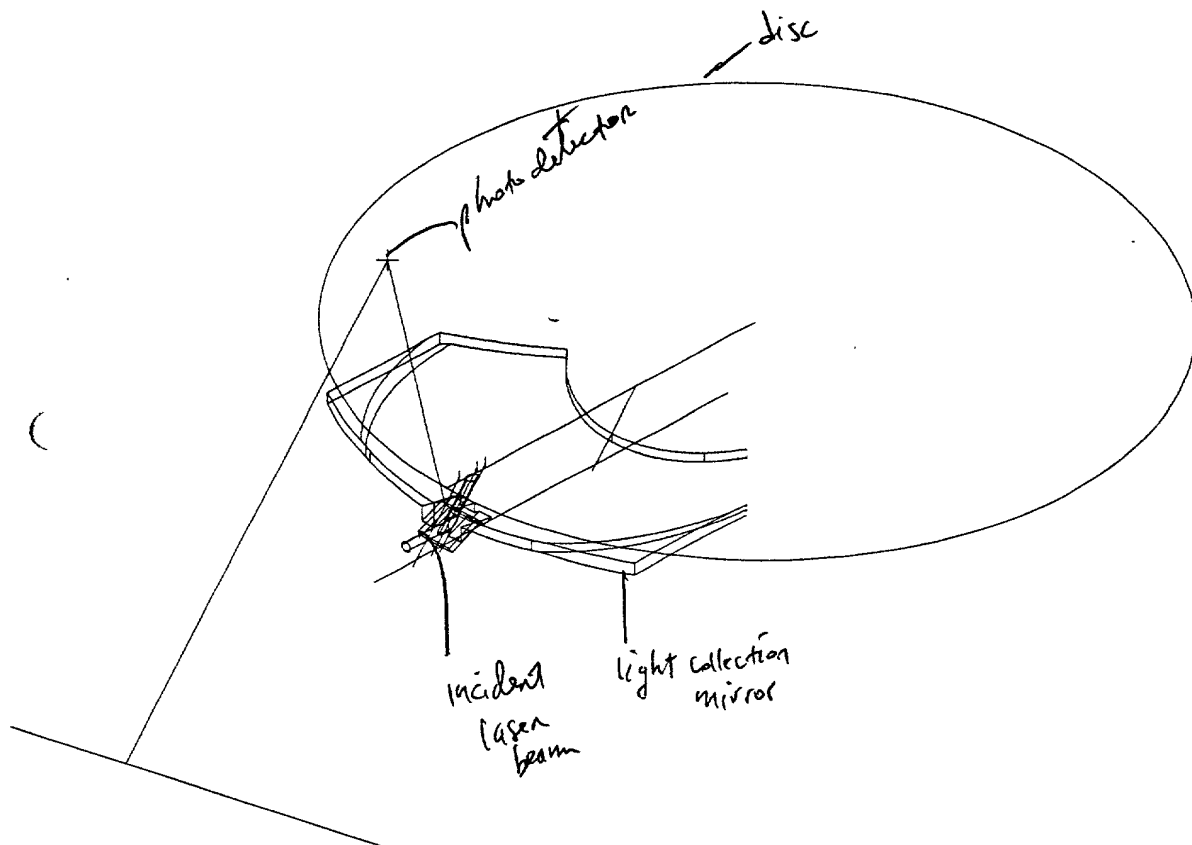


FIG. 17B

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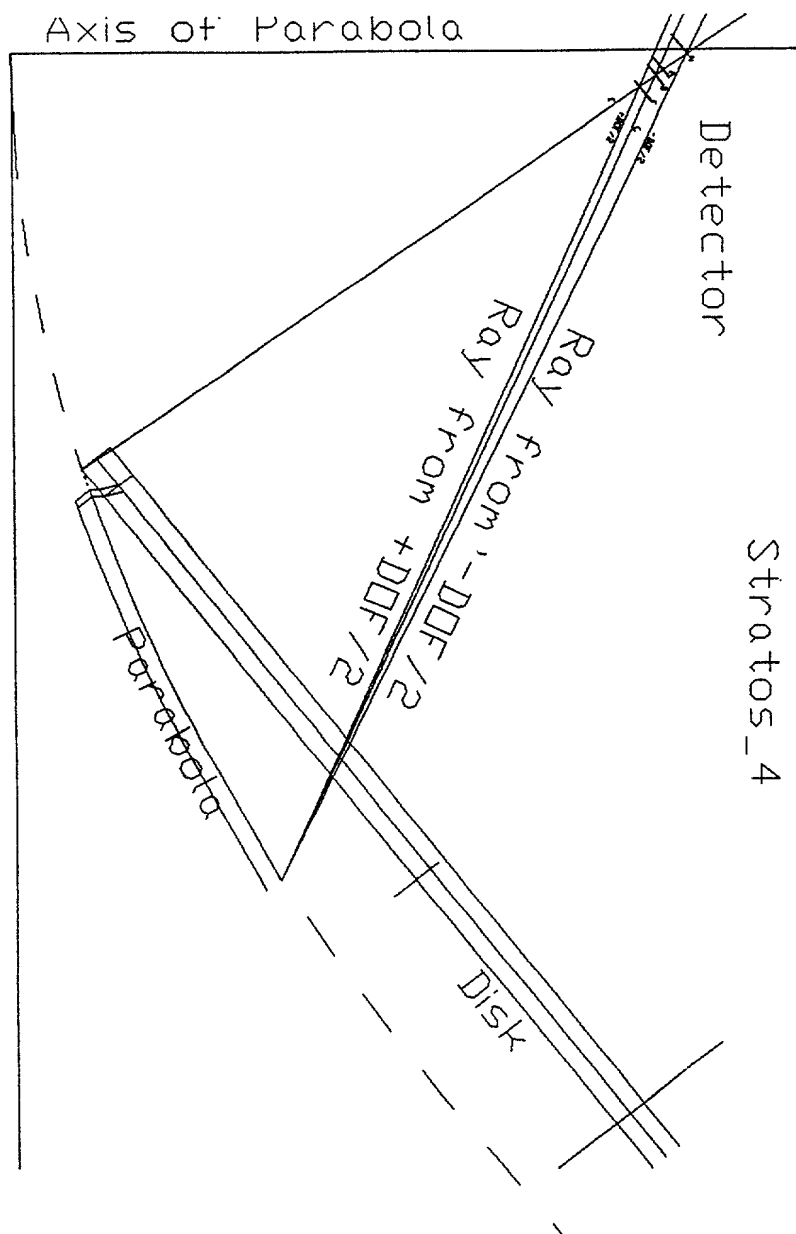


FIG. 17C

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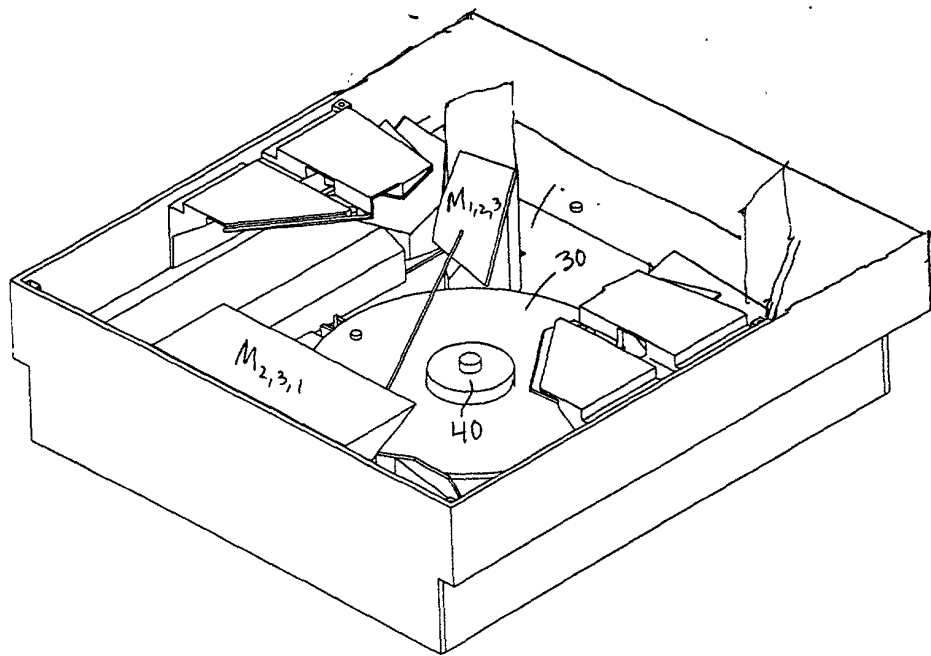


FIG. 18